The BLAW SYSTEM for BUILDING CONSTRUCTION

BLAW-KNOX

CONSTRUCTION OF BUILDING SYSTEM

Gas

Announcement

THE MERGER OF THE UNIFORM COMPANY OF Boston, Mass., with the Blaw-Knox Company of Pittsburgh, Pa., is of profound significance to the building trades. The Uniform Company was organized to develop the general use of the system of floor and roof construction in reinforced concrete designed by Nils F. Ambursen, Mem. Am. Soc. C. E., formerly engineer of the Ambursen Hydraulic Construction Company.

The system, now known as The Blaw System, is not a theoretical design laid out on the design table, but is the outgrowth of twenty years' experience of one of the most competent, practical, and resourceful concrete engineers of the day.

Mr. Ambursen assumes the duties of Chief Engineer of the newly installed Building Forms Department, the function of which is to contract, at a flat price, for the erection and removal of all forms and shoring for columns, floors and roofs.

Mr. W. L. Church, formerly of Westinghouse, Church, Kerr & Company, and who has been associated with Mr. Ambursen for many years, is retained as Consulting Engineer.

The Blaw-Knox Company are the pioneer steel forms builders —with an experience extending over a decade and a half, we have kept pace with construction methods used and have applied BLAWFORMS in part, or in whole, in the construction of most of the noteworthy concrete construction projects, from sewers to subways, from sidewalks to sky-scrapers.

We are therefore enabled to offer you, without obligation, the services of a successful and experienced engineering organization—of men who have designed the steel forms which made possible the economical construction of such projects as the Panama Canal, the Catskill and Winnipeg Aqueducts, the New York State Barge Canal, and the subway and sewer systems of our larger cities, as well as thousands of other projects of lesser magnitude, involving the construction of buildings, bridges, tunnels, roads, dams, and in fact every kind and variety of concrete structure of commercial importance.

Let Blaw form *your* Concrete.

BLAW-KNOX COMPANY

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API INTERNATIONAL

CCA

TABLES

FOR FLOOR AND ROOF

DESIGN

BEAM AND JOIST CONSTRUCTION

PAN SYSTEM

BLAW-KNOX

THE BLAW SYSTEM
FOR BUILDING CONSTRUCTION

RECTANGULAR BEAMS OR GIRDERS

The chart on the opposite page will be found convenient as well as accurate. It conforms to the recommendations of the Joint Committee and is constructed for girders carrying a uniformly distributed load, which is the condition usually obtaining in practice. The fundamental formula for the Bending Moment in foot-pounds, for continuous beams is $M = \frac{WL^2}{12}$. As it is more convenient to read the curves in inch-pounds the base is laid out accordingly. The following formulae in inch-pounds determine the Bending Moment for the conditions noted.

(1.) $M = \quad WL^2$ For beams with fixed ends (continuous girders).
(2.) $M = 1.5\ WL^2$ For beam supported at both ends.
(3.) $M = 1.2\ WL^2$ For beams with one end fixed and one supported, in all of which

M = Bending Moment.
W = Total Load in pounds per foot of length.
L = Clear Span or Length in feet.

USE OF CHART

This is best illustrated by an example:—

First, assume a trial breadth and depth of the beam from experience—say 18″ x 30″. (Depth aways refers to the distance from the top to the center of the steel reinforcement.) Compute the weight of this beam per runnng foot and add to it the dead load of the strip of floor supported and the live load on that strip corresponding to one foot of length. The sum of these is W, equal, let us say, to 4,500 pounds.

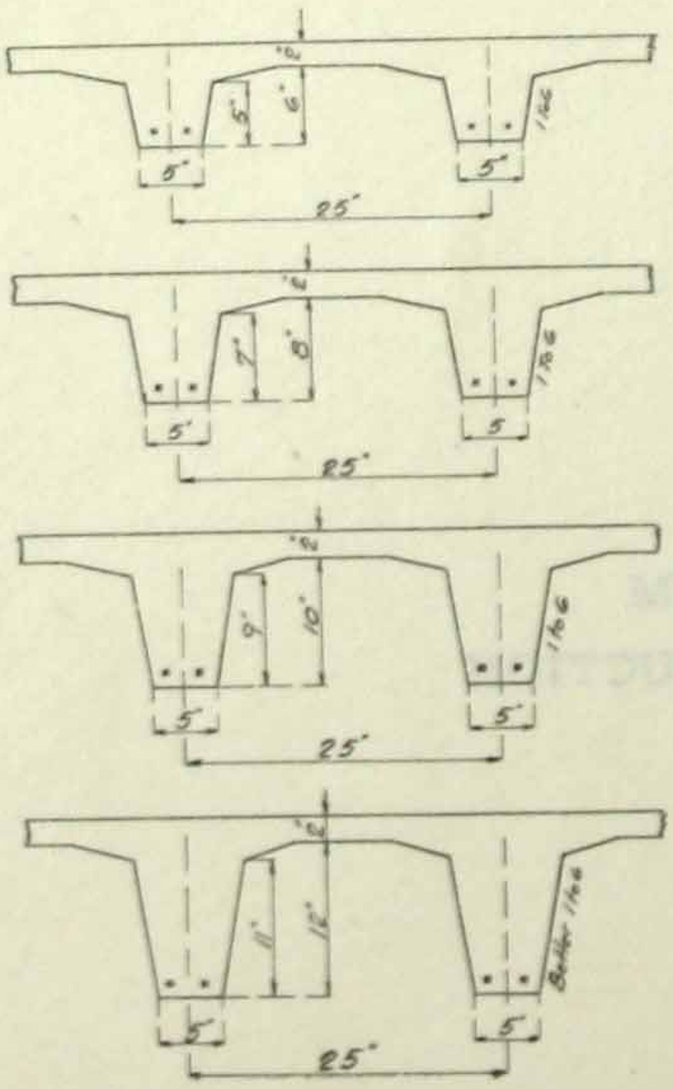
Suppose the span is 20 ft., the value of L. If the beam is continuous, substitute these values in formula (1) and we find M = 1,800,000 inch-pounds. Locate this on the base line which is on a scale of 1,000,000 inch-pounds to the square. It will fall on the 18th line from the left-hand margin. Follow up this line until it intersects the curve corresponding to the breadth b = 18″. Follow from this point out to the left-hand scale and the depth is read as 30.5″. Follow from the same point to the table on the right-hand till it crosses the 18″ column and the area of steel will be a mean between 4.27 and 4.4, or 4.34 sq. in. from which the proper size and number of rods can be selected. The beam thus found being well proportioned, it only remains to add 2″ of concrete below the steel, making the working dimensions of the beam 18″ x 32½″.

If the first trial does not give a satisfactory proportion, alter the assumed dimensions and repeat the process until a well proportioned beam is reached.

The same Table used in reverse will give the Bending Moment (M) of any beam within its range. Substitute this and the known Span (L) in the formula corresponding to the conditions and solve for W, which is the total load from which the live and dead loads can be separated.

STANDARD SECTIONS OF 2″ FLOORS

Any other thickness may be used



The Tables on the following pages show the Safe Live Loads per square foot of floor, the proper area of steel, the number and size of rods, and whether round or square.

They are computed for the **BLAW SYSTEM** only, and give the weight of the floor (slab and joist) per square foot, also the cubic feet of concrete. They have nothing to do with the supporting girders, except to compute the dead load.

While the floor is effectively a continuous beam, it is calculated on the very conservative formula $M = \frac{WL^2}{10}$ (foot-pounds) as if it were for one end fixed and one supported.

The factor of safety is taken care of in the safe loads shown in the bottom line, which are those recommended by the Joint Committee.

The correct spacing of the reinforcement is automatically secured by simply placing them in their seats formed in the spreaders:—see the Blaw System Book for description.

To take care of the negative stress over the girders, one of the two rods is bent up at each end where it passes over the girder, the other remaining straight. The straight part over the girder should be 1–5th the span.

The short horizontal lines crossing the columns indicate the limit of shear. For loads above these lines stirrups become necessary. We are available for consultation without charge.

The Tables are computed for 2″ and 3″ floors, cast in monolith with joists 6″, 8″, 10″ and 12″ deep. If other thicknesses of floor are required, the weight of the extra thickness should be computed as if it were live load and added to or subtracted from the tabular number in the Tables of Safeloads.

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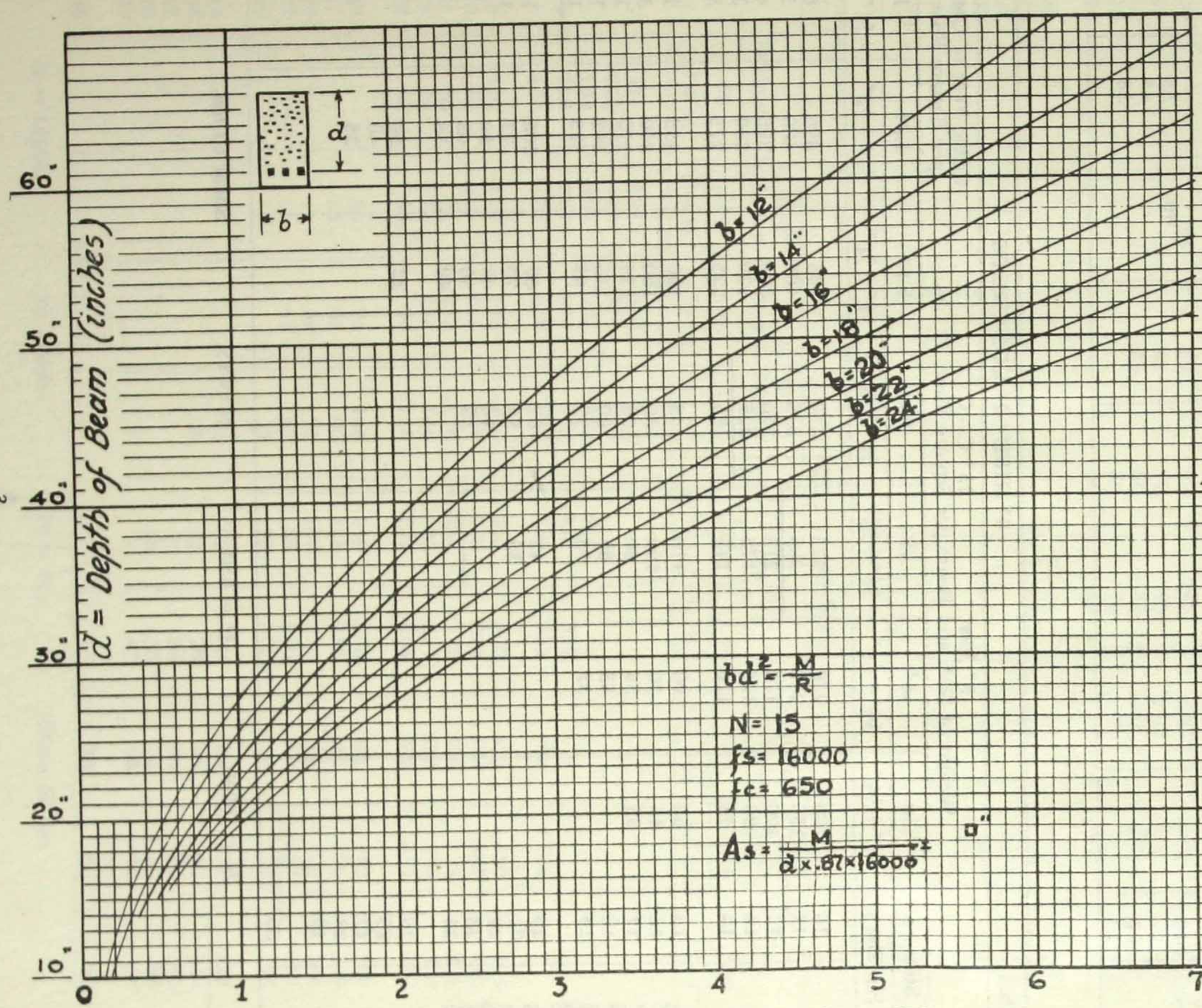
Economical Depth of Beams or Girders



AREA STEEL a"

b=	12"	14"	16"	18"	20"	22"	24"
60"	5.65	6.55	7.5				
	5.6	6.44	7.35	8.4			
	5.5	6.35	7.25	8.3			
	5.4	6.25	7.12	8.15			
	5.33	6.15	7.00	8.03	9.00		
	5.23	6.05	6.88	7.85	8.78		
	5.15	5.95	6.76	7.72	8.6		
	5.05	5.82	6.65	7.55	8.45	9.25	
	4.97	5.7	6.5	7.4	8.3	9.10	
	4.87	5.59	6.35	7.25	8.15	8.88	9.7
50"	4.75	5.50	6.23	7.1	8.00	8.7	9.5
	4.67	5.33	6.1	6.94	7.8	8.53	9.37
	4.58	5.2	5.9	6.72	7.65	8.37	9.1
	4.43	5.15	5.86	6.64	7.50	8.2	8.85
	4.30	5.00	5.7	6.50	7.35	8.05	8.7
	4.23	4.92	5.6	6.36	7.2	7.87	8.5
	4.18	4.8	5.44	6.22	6.87	7.68	8.35
	4.09	4.65	5.3	6.03	6.76	7.53	8.2
	4.00	4.54	5.13	5.87	6.65	7.38	8.0
	3.90	4.42	5.0	5.7	6.5	7.20	7.8
40"	3.84	4.32	4.9	5.6	6.32	7.00	7.65
	3.74	4.23	4.8	5.4	6.20	6.82	7.45
	3.64	4.13	4.68	5.27	5.95	6.64	7.25
	3.54	4.04	4.57	5.12	5.82	6.47	7.16
	3.43	3.93	4.44	5.00	5.60	6.3	6.97
	3.34	3.82	4.32	4.86	5.48	6.1	6.72
	3.28	3.72	4.24	4.75	5.30	5.88	6.5
	3.18	3.62	4.1	4.65	5.22	5.73	6.3
	3.10	3.54	3.95	4.53	5.05	5.6	6.14
	3.00	3.42	3.8	4.4	4.88	5.38	5.92
30"	2.88	3.32	3.68	4.27	4.8	5.2	5.7
	2.77	3.21	3.52	4.07	4.57	5.0	5.55
	2.69	3.10	3.40	3.96	4.36	4.82	5.33
	2.56	3.00	3.33	3.82	4.27	4.68	5.15
	2.46	2.88	3.22	3.74	4.15	4.45	4.98
	2.35	2.78	3.10	3.6	4.03	4.32	4.75
	2.24	2.7	3.00	3.5	3.90	4.20	4.55
	2.18	2.52	2.88	3.35	3.75	4.02	4.37
	2.02	2.42	2.72	3.2	3.63	3.85	4.15
	1.95	2.33	2.65	3.1	3.42	3.7	3.95
	1.87	2.26	2.53	3.00	3.24	3.54	3.75
	1.82	2.10	2.46	2.85	3.03	3.32	3.52
20"	1.72	2.0	2.32	2.70	2.90	3.08	3.2
	1.57	1.95	2.24	2.54			
	1.50	1.88	2.16	2.43			
	1.44	1.78	2.02				
	1.35	1.65	1.95				
	1.25	1.55					
	1.19	1.45					
10"	1.14	1.30					
	1.08	1.26					

Table of Safe Loads in Pounds per Square Foot

Depth	6″ RISE+2″ CONCRETE							
	5″ Joist 25″ C - C Weight of Slab and Beam per Square Foot, 43 Lbs.					Cubic Feet of Concrete per Square Foot, .30		
Area Steel	.28	.40	.50	.64	.78	.95	1.12	1.34
Size of Bars	3/8″+3/8″ Round	1/2″+1/2″ Round	1/2″+1/2″ Square	1/2″+5/8″ Square	5/8″+5/8″ Square	5/8″+3/4″ Square	3/4″+3/4″ Square	3/4″+7/8″ Square
Length of Span in Feet 10	60	110	155	206	260	300	360	400
11	40	85	120	162	206	240	290	320
12		62	93	130	166	195	235	260
13		48	72	102	134	160	195	215
14		35	56	82	110	130	160	180
15			44	66	90	108	135	150
16				52	72	90	110	125
17				40	60	75	95	105
18					48	60	80	90
19					38	50	65	75
20						40	55	65
21							45	50
22							38	43
23								35

Depth	8″ RISE+2″ CONCRETE						
	5″ Joist 25″ C - C Weight of Slab and Beam per Square Foot, 52 Lbs.					Cubic Feet of Concrete per Square Foot, .36	
Area Steel	.50	.64	.78	.95	1.12	1.34	1.53
Size Sq. Bars	1/2″+1/2″	1/2″+5/8″	5/8″+5/8″	5/8″+3/4″	3/4″+3/4″	3/4″+7/8″	7/8″+7/8″
Length of Span in Feet 10	199	270	335	415	496	596	635
11	155	210	265	335	400	480	515
12	120	170	215	270	328	395	425
13	90	135	175	225	270	330	353
14	75	110	145	185	225	275	300
15	60	90	118	155	190	235	260
16	45	70	100	130	160	200	315
17	35	55	80	108	135	170	185
18		45	65	90	115	145	160
19		35	55	75	95	125	135
20			42	62	85	108	118
21			35	52	70	92	100
22				42	60	80	88
23				35	50	68	75
24					40	58	65
25					32	50	55
26						40	50
27						35	40
28							35
29							
30							

fs = 16000, fc = 650, N = 15, Shear 60 lbs.

Tables of Safe Loads in Pounds per Square Foot

Depth		10″ RISE+2″ CONCRETE							
		5″ Joist 25″ C - C Weight of Slab and Beam per Square Foot, 58 Lbs.					Cubic Feet of Concrete per Square Foot, .40		
Area Steel		.50	.64	.78	.95	1.12	1.34	1.53	1.76
Size Sq. Bars		½″+½″	½″+⅝″	⅝″+⅝″	⅝″+¾″	¾″+¾″	¾″+⅞″	⅞″+⅞″	⅞″+″1
Length of Span in Feet	10	256	338	420	525				
	11	200	268	338	420	510			
	12	160	216	274	345	420	505		
	13	125	175	225	286	348	422	490	500
	14	100	142	185	238	290	355	415	420
	15	80	115	152	200	245	300	352	348
	16	62	95	126	168	208	258	302	308
	17	50	75	105	140	178	220	260	266
	18	38	60	88	120	152	190	226	230
	19		50	72	100	130	165	196	200
	20		38	60	85	110	142	170	175
	21			48	71	95	125	150	152
	22			38	60	80	108	130	133
	23				50	70	92	114	118
	24				40	58	80	100	102
	25					50	70	86	90
	26					40	60	76	78
	27						50	66	68
	28						42	56	60
	29							50	50
	30							42	42

Depth		12″ RISE+2″ CONCRETE								
		5″ Joist 25″ C - C Weight of Slab and Beam per Square Foot, 67 Lbs.						Cubic Feet of Concrete per Square Foot, .46		
Area Steel		.50	.64	.78	.95	1.12	1.34	1.53	1.76	2.00
Size Sq. Bars		½″+½″	½″+⅝″	⅝″+⅝″	⅝″+¾″	¾″+¾″	¾″+⅞″	⅞″+⅞″	⅞″+1″	1″+1″
Length of Span in Feet	10	314	412	518						
	11	250	328	416	514					
	12	196	264	336	420	510				
	13	156	215	276	347	426	515			
	14	125	176	228	290	356	435	505	526	
	15	100	142	188	245	300	370	430	450	478
	16	80	120	158	206	258	316	370	388	410
	17	65	98	132	174	218	272	320	335	355
	18	48	78	108	148	190	234	278	290	310
	19	34	65	94	125	162	208	242	254	270
	20		50	76	106	140	178	211	222	240
	21		38	62	90	118	156	186	196	209
	22			50	76	102	134	162	172	184
	23			42	63	88	116	142	152	162
	24				52	76	102	125	135	145
	25				42	62	88	110	118	128
	26				26	52	76	96	104	112
	27					44	66	84	90	100
	28					36	56	74	80	88
	29						47	64	70	76
	30						40	55	60	67

fs = 16000, fc = 650, N = 15, Shear 63 lbs.

Tables of Safe Loads in Pounds per Square Foot

Depth.....	6″ RISE+3″ CONCRETE							
	5″ Joist Weight of Slab and Beam per Square Foot, 58 Lbs.			25″ C - C		Cubic Feet of Concrete per Square Foot, .388		
Area Steel.....	.39	.50	.64	.78	.95	1.12	1.34	1.53
Size Sq. Bars..	5/8″	1/2″+1/2″	1/2″+5/8″	5/8″+5/8″	5/8″+3/4″	3/4″+3/4″	3/4″+7/8″	7/8″+7/8″
Length of Span in Feet 10	124	174	234	296	346	416	500	
11	93	134	182	235	276	335	402	440
12	68	103	145	188	222	270	330	360
13	50	80	114	152	180	222	272	300
14	35	60	90	124	150	182	225	250
15		45	72	100	120	152	190	210
16		32	56	80	100	126	160	176
17			44	65	80	105	134	150
18				52	66	88	114	130
19				42	53	72	95	108
20					42	60	80	90
21						50	68	78
22						40	55	65
23							46	54
24							37	45

Depth	8″ RISE+3″ CONCRETE								
	5″ Joint Weight of Slab and Beam per Square Foot, 66 Lbs.			25″ C - C			Cubic Feet of Concrete per Square Foot, .443		
Area Steel....	.50	.64	.78	.95	1.12	1.34	1.53	1.76	2.00
Size Sq. Bars..	1/2″+1/2″	1/2″+5/8″	5/8″+5/8″	5/8″+3/4″	3/4″+3/4″	3/4″+7/8″	7/8″+1/8″	7/8″+1″	1″+1″
Length of Span in Feet 10	220	290	368	455					
11	170	230	290	364	438	526			
12	130	182	233	295	360	432	502		
13	102	145	190	242	295	358	418	480	510
14	80	115	155	200	245	300	350	405	430
15	60	90	125	165	205	250	300	345	368
16	45	74	102	138	172	212	254	295	315
17	32	57	84	115	145	180	218	253	270
18		43	68	95	121	155	185	218	235
19		32	54	78	102	130	161	190	203
20			40	64	86	112	138	165	178
21			30	50	70	96	120	145	155
22				40	60	80	102	124	135
23				32	50	70	88	108	118
24					40	60	75	93	103
25					30	48	64	80	90
26						40	54	70	78
27						30	45	60	68
28							37	50	58
29							30	42	50
30								36	40

fs = 16000, fc = 650, N = 15, Shear 60 lbs.

Tables of Safe Loads in Pounds per Square Foot

Depth	10″ RISE+3″ CONCRETE								
	5″ Joist 25″ C - C Weight of Slab and Beam per Square Foot, 72 Lbs.					Cubic Feet of Concrete per Square Foot, .488			
Area Steel....	.50	.64	.78	.95	1.12	1.34	1.53	1.76	2.00
Size Sq. Bars..	½″+½″	½″+⅝″	⅝″+⅝″	⅝″+¾″	¾″+¾″	¾″+⅞″	⅞″+⅞″	⅞″+1″	1″+1″
Length of Span in Feet 10	272	360	450						
11	212	284	358	450					
12	166	226	288	368	442	538			
13	130	182	235	302	366	448	520		
14	102	148	192	250	305	376	440	512	
15	80	118	160	208	256	318	372	436	495
16	60	96	130	174	216	270	320	376	426
17	46	76	106	146	182	230	274	324	368
18	34	60	88	122	156	200	236	280	322
19		46	70	102	132	170	204	245	280
20		34	56	85	112	146	176	212	246
21			44	70	94	126	154	187	216
22			34	58	80	108	134	164	190
23				46	66	93	116	144	168
24				36	55	80	100	126	148
25					45	68	88	110	130
26					36	56	75	96	116
27						46	65	84	102
28						38	54	73	90
29							46	63	78
30							38	54	68

Depth.....	12″ RISE+3″ CONCRETE								
	5″ Joist 25″ C - C Weight of Slab and Beam per Square Foot, 82 Lbs.					Cubic Feet of Concrete per Square Foot, .548			
Area Steel....	.50	.64	.78	.95	1.12	1.34	1.53	1.76	2.00
Size Sq. Bars..	½″+½″	½″+⅝″	⅝″+⅝″	⅝″+¾″	¾″+¾″	¾″+⅞″	⅞″+⅞″	⅞″+1″	1″+1″
Length of Span in Feet 10	326	432	543						
11	255	340	436	540					
12	200	276	354	438	532				
13	162	222	290	362	442	542			
14	126	180	238	300	368	456	528		
15	100	146	196	254	312	388	448	526	
16	78	118	164	212	262	330	384	454	528
17	60	96	134	178	224	282	332	392	456
18	44	76	112	152	192	244	288	344	402
19	32	60	92	126	162	212	250	296	352
20		46	74	106	138	182	216	260	308
21		34	60	88	118	158	188	228	270
22			48	74	102	136	166	200	240
23			36	60	86	118	144	178	212
24			26	48	72	102	126	156	190
25				38	60	86	110	138	168
26				28	50	74	98	122	148
27					40	62	84	106	132
28					30	52	70	96	118
29						43	60	82	104
30						35	50	70	92

fs = 16000, fc = 650, N = 15, Shear 60 lbs.

GENERAL EXAMPLE

As a general guide let us assume the following example:

Design a floor to carry a live load of 150 lbs. per sq. ft. To be supported by square columns 2′ x 2′ on 20′ centers both ways.

Such a floor will be carried on parallel girders running lengthwise or crosswise of the building as conditions may determine. The **BLAW SYSTEM** floor will be supported directly upon these girders without any cross beams.

First assume a trial dimension for the girder, say 18″ × 30″. Including steel, such a girder will weigh 560 lbs. per running foot.

The clear span for the floor between the girders will be 18.5′. Assume that the live load is of such a nature that 2″ thickness of floor at the crown will be ample. First try an 8″ rise, working from the Table on page 4. 150 lbs. live load on 18.5′ span falls in the right-hand column between the 9th and 10th lines from the top. This calls for two $\frac{7}{8}$″ square bars, and as it comes just above the shear line, a little stirrup reinforcement near the end will be necessary. The weight of such a floor is 52 lbs. per sq. ft.

If desirable to avoid the stirrup reinforcement we next try a 10″ rise, working from the Table on page 5. The live load will fall in the 5th column from the left and is well below the shear line. The reinforcement will consist of two $\frac{3}{4}$″ square bars and the weight per sq. ft. is 58 lbs.

Using these last values we proceed to calculate the girder as described on page 2. Each lineal ft. of girder supports 18.5 sq. ft. of floor of which the dead load is 58 × 18.5 = 1073 lbs. and the live load 150 × 18.5 = 2775 lbs. The total load per running ft. of girder including its own weight is therefore 4408 lbs.

The Bending Moment is 4408 × 18 × 18 = 1,425,000 lbs.

Locate this on the chart at the intersection of the proper vertical line with the 18″ curve. On the left or right-hand scale read the depth of the center of the steel 27″, and add 2″ for concrete, below the steel, making the total depth of beam 29″.

Carrying the point of intersection to the right the area of steel in the 18″ column is found to be 3.82 sq. in. from which suitable rods can be selected.

This girder is of good proportion, but if for any reason the general result is not satisfactory, other trials can be made involving different proportions for the floor and girder until the most satisfactory result is reached.

The quantity and cost of concrete and steel for each trial can be computed at the prevailing market prices, and the most economical proportion thus determined having reference to architectural considerations.

BLAW-KNOX COMPANY

PITTSBURGH, PA.

FLAT SLAB
AND RELIEVED SLAB

TABLES SHOWING
COMPARATIVE SAVINGS

BLAW-KNOX

THE BLAW SYSTEM
FOR BUILDING CONSTRUCTION

BLAW-KNOX COMPANY
PITTSBURGH, PA.

PROPERTIES OF THE RELIEVED SLAB

LET it be distinctly understood at the outset that *these are not Design Tables*. In the Beam and Joist system practice has become sufficiently standardized, following the theory so closely, that it is possible to prepare Design Tables which the Architect may safely use without the necessity of verifying them by recalculations.

Not so in the case of the Flat Slab or Relieved Slab. The Relieved Slab is neither more nor less than the Flat Slab lightened by the removal of a heavy percentage of dead concrete. The method of design, therefore, is identical with that of the standard Flat Slab, making use of the bending moments and formulas. The difference in result is due entirely to the reduction of dead load in the weight of the slab itself.

It follows therefore that, strictly speaking, this is a *Table of Comparisons*. In working up a design it can be followed in so far as the dimensions of the drop panel or plinth (columns D, E, F), the depth of the dome (column J) and thickness of floor (column K) are concerned. The total amount of steel (column I minus column S) will work out very close, but we specify no data as to the size, spacing and disposition of the rods. This must be worked out in connection with each problem.

If the millennial day ever comes when building laws are everywhere standardized, the practice of engineers will automatically fall into standardized lines at the same time. Until this happens it is manifestly impossible for us to prepare literal Design Tables which will be universally applicable.

EXPLANATIONS

The Tables largely explain themselves. To insure a perfect understanding, the following comments may have value.

By the term "bay" we refer to the rectangular area bounded by the lines between centers of four adjacent columns. Thus, if the columns are spaced 20 ft. on centers in one direction and 25 ft. in the other, the bay is 20′ x 25′ with an area of 500 sq. ft. The title number always refers to the shortest dimension of this bay.

Flat Slab. The first nine columns, A to I inclusive, relate solely to the so-called standard Flat Slab and are for the purpose of permitting engineers to check up the basis of comparison.

The three first columns, A, B and C, taken together constitute the basic data.

The next three columns, D to F, correspond to standard practice in designing the drop panel or plinth. The sides of the plinth are 40% of the span. The dimensions in column E are therefore variable to the nearest 3″, hence in an oblong bay the plinth is always oblong. This refinement is not always followed in practice but should be. Some latitude, however, can be taken in these dimensions.

Column H is the total number of cubic feet of concrete in each bay including the slab and the plinth.

Column I is slightly empirical being standardized at 5 lbs. of steel per cu. ft. of concrete. This will not vary materially from the best designs and introduces no error when we consider that this is a Table of Comparisons only.

To illustrate the foregoing by an example:

Consider a Flat Slab floor to support a live load of 400 lbs. on columns 20 ft. apart one way and 25 ft. the other. The plinth will be 8′ x 10′ and 18.25″ thick. The thickness of slab will be 12.5″, and the total concrete and steel in the bay will be respectively 559 cu. ft. and 2795 lbs.

Relieved Slab. The remainder of the Table gives the corresponding results for the Relieved Slab.

The first seven columns, J to P, relate to the concrete in the floor.

Column J. Our standard domes are 4″, 6″, 8″ and 10″ in depth, by which we refer to the dome proper, measuring from the lower edge of the transverse joist to the crown of the dome. The longitudinal joist is always 1.75″ deeper than the transverse joist.

Column K is the minimum thickness of floor recommended, measuring from the crown of the dome. If by reason of excessive wear on the floor, a thicker floor is desired, simply add the weight of the extra concrete at the rate of 6 lbs. per sq. ft. per ½″ thickness. This may be treated as live load, although it will of course have its value in reducing the unit stress of the concrete in compression.

Column L is the sum of J and K plus 1.75″, and gives the total depth of the floor from the top surface to the underside of the longitudinal joists.

Column M is the total concrete in the bay including the plinth.

Column N is column H minus column M, being the total saving in cu. ft. due to the dome construction.

Column O is column N divided by column H and gives the percentage of saving in total concrete over Flat Slab construction.

Column P is the value of the concrete thus saved on the basis of 30 cents per cu. ft.

Illustrating as before, a 20′ x 25′ bay under 400 lbs. of live load will call for an 8″ dome with a 3″ floor. The total depth of the floor will be 12.75″. The total concrete in the bay will be 375 cu. ft., and the saving over the Flat Slab will be 184 cu. ft. This is a saving of exactly 33 per cent of total concrete, and the value of the saving will be $55.20 per bay.

The next two columns Q and R are important since they show the large but indirect saving on the columns, piers and footings due to the reduction in the weight of floor.

Column Q is the number of tons saved *per column per floor* due to the Relieved Slab.

Column R is the number of tons carried by each column *per floor* including the weight of the Relieved Slab floor plus the live load.

Columns S, T, and U relate to the steel in the Relieved Slab.

Column S is the saving in steel, due in part to the reduction of dead weight and in part to the increase of depth in the longitudinal joists. The total steel per bay in the Relieved Slab is obviously found by subtracting column S from column I.

Column T is the percentage of saving, being column S divided by column I.

Column U is the value of the saving at 5 cents per lb. for the steel in place.

In the example under consideration, the saving in steel per bay is 294 lbs. or 10.5 per cent, the value of which is $14.70.

Column V is the sum of columns P and U.

Column W is this value divided by the area of the bay, which in turn is the product of columns B and C.

Our example therefore works out to a final saving of $69.90 per bay, or exactly 14 cents per sq. ft.

REMARKS

For the convenience of the Engineer in designing the Relieved Slab we have adopted a standard dome-unit 24″ x 24″ in plan. That is to say, the joists between the domes are on centers 24″ each way. The area of the dome unit is therefore 4 sq. ft.

If consistent with other requirements of the design, it is obvious that the clear span between the edges of the drop panels may be made in multiples of 2 ft.—otherwise the space is taken up by filler pieces which are assumed by us in our construction contract.

15 Foot Table

FLAT SLAB									RELIEVED SLAB												
			DROP PANEL						CONCRETE							WEIGHT		STEEL			TOTAL VALUE	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Steel Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**15**	15	6.	6.	7.5	6.	117	585	4	2.	7.75	89	28	23.9	8.40	1.96	10.7	120	20.5	6.00	14.40	.0641
"	"	16	6.	6.5	7.75	6.	125	625	4	2.	7.75	95	30	24.	9.00	2.1	11.4	130	20.8	6.50	15.50	.0646
"	"	17	6.	6.75	8.	6.	134	670	4	2.	7.75	102	32	23.9	9.60	2.24	12.2	137	20.4	6.85	16.45	.0646
"	"	18	6.	7.25	8.5	6.25	149	720	4	2.	7.75	110	39	26.2	11.70	2.73	13.2	162	22.5	8.10	19.80	.0733
"	"	19	6.	7.78	8.75	6.5	154	770	4	2.	7.75	118	36	23.4	10.80	2.52	14.2	155	20.1	7.75	18.55	.0651
"	"	20	6.	8.0	9.25	7.0	184	920	4	2.	7.75	125	59	32.	17.70	4.12	15.	179	19.4	8.95	26.65	.89
150	**15**	15	6.	6.	8.	6.	118	590	4	2.	7.75	90	28	23.7	8.40	1.96	13.	106	18.	5.30	13.70	.061
"	"	16	6.	6.5	8.5	6.	128	640	4	2.	7.75	98	30	23.4	9.00	2.1	14.2	118	18.5	5.90	14.90	.0621
"	"	17	6.	6.75	9.	6.25	139	695	4	2.	7.75	105	34	24.5	10.40	2.38	15.2	108	15.6	5.40	15.80	.062
"	"	18	6.	7.25	9.5	6.75	163	815	4	2.	7.75	113	50	30.6	15.00	3.50	16.4	147	18.0	7.35	22.35	.0827
"	"	19	6.	7.78	9.75	7.	176	880	4	2.	7.75	120	56	31.8	16.80	3.92	17.4	136	15.5	6.80	23.60	.0829
"	"	20	6.	8.0	10.25	7.5	199	995	4	2.	7.75	129	70	35.2	21.00	4.9	18.7	140	14.1	7.00	28.00	.0935
200	**15**	15	6.	6.	8.5	6.	119	595	4	2.	7.75	91	28	24.2	8.40	1.96	15.5	100	16.8	5.00	13.40	.0596
"	"	16	6.	6.5	9.	6.5	138	690	4	2.	7.75	99	39	28.2	11.70	2.93	16.8	100	14.5	5.00	16.70	.0695
"	"	17	6.	6.75	9.5	6.75	155	775	4	2.	7.75	107	48	31.0	14.40	3.36	18.2	90	11.6	4.50	18.90	.0741
"	"	18	6.	7.25	10.	7.25	173	865	4	2.	7.75	115	58	33.5	17.40	4.06	19.5	106	12.3	5.30	22.70	.0841
"	"	19	6.	7.78	10.5	7.5	190	990	4	2.	7.75	124	66	34.7	19.80	4.62	21.1	108	10.9	5.40	25.20	.0885
"	"	20	6.	8.0	11.	8.	210	1050	4	2.5	8.25	143	67	31.9	20.10	4.69	24.3	138	13.1	6.90	27.00	.09
250	**15**	15	6.	6.	9.	6.5	129	645	4	2.	7.75	93	36	27.9	10.80	2.52	18.1	81	12.5	4.05	14.85	.066
"	"	16	6.	6.5	9.75	7.	149	745	4	2.	7.75	102	46	31.5	14.10	3.29	19.9	80	10.7	4.00	18.10	.0755
"	"	17	6.	6.75	10.25	7.25	164	820	4.	2.	7.75	110	54	32.9	18.20	3.78	21.4	63	7.7	3.15	19.35	.0759
"	"	18	6.	7.25	10.75	7.75	186	930	4	2.	7.75	118	68	36.6	20.40	4.76	23.	89	9.6	4.45	24.85	.0918
"	"	19	6.	7.78	11.5	8.	202	1010	4	2.5	8.25	139	63	31.2	18.90	4.41	27.1	89	8.8	4.45	23.35	.0819
"	"	20	6.	8.0	12.	8.5	226	1130	4	3.	8.75	158	68	31.5	20.40	4.76	30.8	124	11.	6.20	26.60	.089
300	**15**	15	6.	6.	10.	6.75	138	690	4	2.	7.75	96	42	30.4	12.60	2.94	31.1	57	8.3	2.85	15.45	.0687
"	"	16	6.	6.5	10.5	7.25	155	775	4	2.	7.75	105	50	32.2	15.00	3.5	23.1	43	5.6	2.15	17.15	.0715
"	"	17	6.	6.75	11.	7.75	175	875	4	2.5	7.7	112	54	30.8	16.20	3.78	24.6	44	5.0	2.20	18.40	.0722
"	"	18	6.	7.25	11.5	8.25	198	990	4	2.5	8.25	131	57	28.8	17.10	3.99	28.8	61	6.2	3.05	20.15	.0746
"	"	19	6.	7.78	12.	8.5	216	1080	4	3.	8.75	151	65	30.1	19.50	4.55	33.2	83	7.7	4.15	23.65	.0826
"	"	20	6.	8.0	13.	9.	241	1205	6	2.	9.75	162	79	32.8	23.70	5.55	35.6	149	12.4	7.45	31.15	.1038
400	**15**	15	6.	6.	11.5	7.5	152	760	4	2.	7.75	100	52	34.2	15.60	3.64	27.	32	4.3	1.60	17.20	.0765
"	"	16	6.	6.5	12.	8.	173	865	4	2.5	8.25	118	55	31.8	16.50	3.85	31.9	42	4.9	2.10	18.60	.0775
"	"	17	6.	6.75	12.5	8.5	194	970	4	3.	8.75	136	58	29.9	17.40	4.06	36.7	51	5.3	2.55	19.95	.0793
"	"	18	6.	7.25	13.	9.	217	1085	6	2.	9.75	146	71	32.7	21.30	4.97	39.4	108	10.	5.40	26.70	.099
"	"	19	6.	7.78	13.75	9.5	242	1210	6	2.	9.75	157	85	35.1	25.50	5.95	42.4	98	8.1	4.90	30.40	.1066
"	"	20	6.	8.0	14.5	10.	268	1340	6	2.5	10.25	178	90	33.8	27.00	6.3	48.	113	8.5	5.65	32.65	.109
500	**15**	15	6.	6.	12.5	8.5	171	855	4	3.	8.75	119	52	30.4	15.60	3.64	38.1	24	2.8	1.20	16.80	.0747
"	"	16	6.	6.5	13.	9.	192	960	6	2.	9.75	129	63	32.8	18.90	4.41	41.3	73	7.7	3.65	22.55	.0938
"	"	17	6.	6.75	13.5	9.5	216	1080	6	2.	9.75	139	77	35.6	23.10	5.39	44.5	64	5.9	3.20	26.30	.103
"	"	18	6.	7.25	14.25	10.	241	1205	6	2.5	10.25	160	81	33.5	24.30	5.67	51.2	76	6.4	3.80	28.10	.104
"	"	19	6.	7.78	15.25	10.5	268	1340	6	3.	10.75	173	95	35.5	28.50	6.65	55.4	90	6.7	4.50	33.00	.1158
"	"	20	6.	8.0	16.	11.	294	1470	8	2.	11.75	184	110	37.4	33.00	7.7	58.9	150	10.2	7.50	40.50	.135

16 Foot Table

FLAT SLAB									RELIEVED SLAB													
			Drop Panel						Concrete							Weight		Steel			Total Value	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Steel Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**16**	16	6.5	6.5	7.5	6.0	135	675	4	2.	7.75	102	33	24.4	9.90	2.31	12.2	140	20.8	7.00	16.90	.066
"	"	17	6.5	6.75	7.5	6.0	142	710	4	2.	7.75	108	34	23.9	10.20	2.38	13.0	148	20.9	7.40	17.60	.0648
"	"	18	6.5	7.25	8.0	6.25	156	780	4	2.	7.75	115	41	26.2	12.30	2.87	13.8	164	21.0	8.20	20.50	.0712
"	"	19	6.5	7.78	8.5	6.5	173	865	4	2.	7.75	125	48	27.7	14.40	3.36	15.0	175	20.3	8.75	23.15	.0761
"	"	20	6.5	8.0	9.0	7.0	194	970	4	2.	7.75	132	62	32.0	18.60	4.34	15.9	185	19.1	9.25	27.85	.087
"	"	21	6.5	8.5	9.5	7.25	212	1060	4	2.	7.75	141	71	33.5	21.30	4.97	16.9	195	18.4	9.75	31.05	.0925
150	**16**	16	6.5	6.5	8.0	6.0	137	685	4	2.	7.75	104	33	24.1	9.90	2.31	15.1	123	18.0	6.15	16.05	.0628
"	"	17	6.5	6.75	8.5	6.25	150	750	4	2.	7.75	111	39	26.0	11.70	2.73	16.1	128	17.1	6.40	18.10	.0666
"	"	18	6.5	7.25	9.0	6.75	170	850	4	2.	7.75	119	51	30.0	15.30	3.57	17.3	135	15.9	6.75	22.05	.0765
"	"	19	6.5	7.78	9.5	7.0	188	940	4	2.	7.75	130	58	30.8	17.40	4.06	18.9	142	15.1	7.10	24.50	.0805
"	"	20	6.5	8.0	10.0	7.5	210	1050	4	2.	7.75	137	73	34.8	21.90	5.11	19.9	148	14.1	7.40	29.30	.0915
"	"	21	6.5	8.5	10.5	7.75	229	1145	4	2.	7.75	148	81	35.4	24.30	5.67	21.5	148	12.9	7.40	31.70	.0945
200	**16**	16	6.5	6.5	9.0	6.5	149	745	4	2.	7.75	107	42	28.2	12.60	2.94	18.2	107	14.3	5.35	17.95	.0701
"	"	17	6.5	6.75	9.5	6.75	163	815	4	2.	7.75	115	48	29.4	14.40	3.36	19.6	108	13.2	5.40	19.80	.0729
"	"	18	6.5	7.25	10.0	7.25	184	920	4	2.	7.75	123	61	33.2	18.30	4.27	20.9	106	11.5	5.30	23.60	.082
"	"	19	6.5	7.78	10.5	7.5	203	1015	4	2.	7.75	134	69	34.0	20.70	4.83	22.8	113	11.0	5.65	26.35	.0866
"	"	20	6.5	8.0	11.0	8.0	227	1135	4	2.5	8.25	153	74	32.6	22.20	5.18	26.0	124	10.9	6.20	28.40	.0866
"	"	21	6.5	8.5	11.5	8.25	246	1230	4	2.5	8.25	163	83	33.7	24.90	5.81	27.7	127	10.3	6.35	31.25	.0932
250	**16**	16	6.5	6.5	9.5	7.0	160	800	4	2.	7.75	109	51	31.8	15.30	3.57	21.2	80	10.0	4.00	19.30	.0755
"	"	17	6.5	6.75	10.0	7.25	175	875	4	2.	7.75	117	58	33.2	17.40	4.06	22.8	83	9.4	4.15	21.55	.0783
"	"	18	6.5	7.25	10.5	7.75	196	980	4	2.	7.75	125	71	36.2	21.30	4.97	24.4	77	7.8	3.85	25.15	.0873
"	"	19	6.5	7.78	11.0	8.00	215	1075	4	2.5	8.25	146	69	32.1	20.70	4.83	28.4	81	8.5	4.55	25.25	.0832
"	"	20	6.5	8.0	12.0	8.5	242	1210	4	3.	8.75	169	73	30.2	21.90	5.11	33.0	125	10.3	6.25	28.15	.0881
"	"	21	6.5	8.5	12.5	8.75	262	1310	4	3.	8.75	181	81	30.9	24.30	5.67	35.3	111	8.5	5.55	29.85	.0890
300	**16**	16	6.5	6.5	10.5	7.25	169	845	4	2.	7.75	113	56	33.1	16.80	3.92	24.9	62	7.3	3.10	19.90	.0778
"	"	17	6.5	6.75	11.0	7.75	187	935	4	2.	7.75	120	67	35.8	20.10	4.69	26.4	49	5.2	2.45	22.55	.083
"	"	18	6.5	7.25	11.5	8.25	210	1050	4	2.5	8.25	140	70	33.3	21.00	4.90	30.8	58	5.5	2.90	23.90	.083
"	"	19	6.5	7.78	12.0	8.5	230	1150	4	3.	8.75	161	69	30.0	20.70	4.83	35.4	107	9.34	5.35	26.05	.0858
"	"	20	6.5	8.0	13.0	9.0	257	1285	6	2.	9.75	172	85	33.1	25.50	5.95	37.8	153	11.91	7.65	33.15	.1036
"	"	21	6.5	8.5	13.5	9.5	284	1420	6	2.	9.75	184	100	35.2	30.00	7.00	40.5	152	10.68	7.60	37.60	.1119
400	**16**	16	6.5	6.5	11.5	8.0	185	925	4	2.5	8.25	126	59	31.8	17.70	4.13	34.0	37	4.0	1.85	19.55	.0764
"	"	17	6.5	6.75	12.5	8.5	208	1040	4	3.	8.75	145	63	30.2	18.90	4.41	39.2	49	4.7	2.45	21.35	.0785
"	"	18	6.5	7.25	13.0	9.0	232	1160	6	2.	9.75	156	76	32.7	22.80	5.32	42.1	105	9.07	5.25	28.05	.0975
"	"	19	6.5	7.78	13.5	9.5	258	1290	6	2.	9.75	167	91	35.2	27.30	6.36	45.0	131	10.17	6.55	33.85	.1115
"	"	20	6.5	8.0	14.5	10.0	287	1435	6	2.5	10.25	191	96	33.4	28.80	6.72	51.5	115	8.0	5.75	33.55	.1048
"	"	21	6.5	8.5	15.0	10.5	315	1575	6	3.	10.75	214	101	32.1	30.30	7.08	57.8	139	8.83	6.95	37.25	.1110
500	**16**	16	6.5	6.5	13.0	9.0	209	1045	6	2.	9.75	140	69	33.0	20.70	4.83	44.8	76	7.25	3.80	24.50	.0958
"	"	17	6.5	6.75	13.5	9.5	230	1150	6	2.	9.75	148	82	35.6	24.60	5.74	47.4	65	5.63	3.25	27.85	.105
"	"	18	6.5	7.25	14.5	10.0	258	1290	6	2.5	10.25	172	86	33.3	25.80	6.02	55.0	80	6.2	4.00	29.80	.1035
"	"	19	6.5	7.78	15.5	10.5	286	1430	6	3.	10.75	195	91	31.8	27.30	6.36	62.49	98	6.85	4.90	32.20	.106
"	"	20	6.5	8.0	16.0	11.0	315	1575	8	2.	11.75	208	107	34.0	32.10	7.5	66.5	154	9.77	7.70	39.80	.1242
"	"	21	6.5	8.5	17.0	11.5	348	1740	8	2.	11.75	224	124	35.7	37.20	8.68	71.6	144	8.28	7.20	44.40	.132

17 Foot Table

FLAT SLAB									RELIEVED SLAB													
			Drop Panel						Concrete							Weight		Steel			Total Value	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Steel Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**17**	17	6.75	6.75	7.5	6.	150	750	4	2.	7.75	113	37	24.6	11.10	2.59	13.6	154	20.5	7.70	18.80	.065
"	"	18	6.75	7.25	8.0	6.25	167	835	4	2.	7.75	123	44	26.3	13.20	3.08	14.8	169	20.25	8.45	27.60	.0905
"	"	19	6.75	7.78	8.5	6.50	186	930	4	2.	7.75	130	56	30.1	16.80	3.92	15.6	186	20.0	9.30	26.10	.081
"	"	20	6.75	8.00	9.0	7.00	207	1035	4	2.	7.75	140	67	32.4	20.10	4.68	16.8	196	18.9	9.80	29.90	.088
"	"	21	6.75	8.50	9.5	7.25	225	1125	4	2.	7.75	150	75	33.3	22.50	5.25	18.0	214	19.0	10.70	33.20	.093
"	"	22	6.75	8.75	10.0	7.50	245	1225	4	2.	7.75	159	86	35.2	25.80	6.02	19.1	226	18.5	11.20	37.00	.0989
"	"	23	6.75	9.25	10.5	7.75	266	1330	4	2.	7.75	169	97	36.4	29.10	6.79	20.3	239	18.0	11.95	41.55	.1064
150	**17**	17	6.75	6.75	8.5	6.25	159	795	4	2.	7.75	117	42	26.4	12.60	2.94	17.0	137	17.3	6.85	19.45	.0673
"	"	18	6.75	7.25	9.0	6.75	176	880	4	2.	7.75	127	49	27.8	14.70	3.43	18.4	135	15.3	6.75	21.45	.0702
"	"	19	6.75	7.78	9.5	7.00	197	985	4	2.	7.75	134	63	32.0	18.90	4.41	19.4	149	15.1	7.45	26.35	.0815
"	"	20	6.75	8.00	10.0	7.50	224	1120	4	2.	7.75	145	79	35.3	23.70	5.53	21.0	153	13.6	7.65	31.35	.0932
"	"	21	6.75	8.50	10.5	7.75	244	1220	4	2.	7.75	155	89	36.8	26.70	6.23	22.5	151	12.5	7.55	34.25	.096
"	"	22	6.75	8.75	11.0	8.00	260	1300	4	2.5	8.25	178	82	31.6	24.60	5.74	25.8	179	13.8	8.95	33.55	.0896
"	"	23	6.75	9.25	11.5	8.50	292	1460	4	3.	8.75	202	90	30.9	27.00	6.3	29.2	196	13.4	9.80	36.80	.0941
200	**17**	17	6.75	6.75	9.50	6.75	178	865	4	2.	7.75	121	52	30.0	15.60	3.64	20.6	115	13.3	5.75	21.35	.0738
"	"	18	6.75	7.25	9.75	7.25	195	975	4	2.	7.75	130	65	33.3	19.50	4.55	22.1	103	10.6	5.15	24.65	.0806
"	"	19	6.75	7.78	10.25	7.50	211	1055	4	2.	7.75	137	74	35.1	22.20	5.18	23.3	112	10.6	5.60	27.80	.0862
"	"	20	6.75	8.00	11.00	8.00	241	1205	4	2.5	8.25	168	73	30.3	31.90	5.11	28.6	127	10.5	6.35	28.25	.0832
"	"	21	6.75	8.50	11.50	8.25	261	1305	4	2.5	8.25	179	82	31.9	24.60	5.74	30.4	126	9.7	6.30	30.90	.0866
"	"	22	6.75	8.75	12.00	8.50	282	1410	4	3.	8.75	196	86	30.5	25.80	6.02	33.3	155	11.0	7.75	33.55	.0898
"	"	23	6.75	9.25	12.50	9.00	311	1555	6	2.	9.75	208	103	33.2	30.90	7.2	35.4	247	15.9	12.35	43.25	.1108
250	**17**	17	6.75	6.75	10.0	7.25	185	925	4	2.	7.75	123	62	33.5	18.60	4.34	24.	83	9.	4.15	22.75	.0786
"	"	18	6.75	7.25	10.5	7.75	209	1045	4	2.	7.75	133	76	36.5	22.80	5.32	25.9	67	6.37	3.35	26.15	.0854
"	"	19	6.75	7.78	11.0	8.00	225	1125	4	2.5	8.25	157	68	30.2	20.40	4.76	30.6	91	8.2	4.55	24.95	.0772
"	"	20	6.75	8.00	11.5	8.50	254	1270	4	3.	8.75	176	78	30.7	23.40	5.46	34.3	114	9.	5.70	29.10	.0857
"	"	21	6.75	8.50	12.5	8.75	277	1385	4	3.	8.75	190	87	31.5	26.10	6.09	37.	112	8.1	5.60	31.70	.0888
"	"	22	6.75	8.75	13.25	9.25	307	1535	6	2.	9.75	202	105	34.2	31.50	7.35	39.4	201	13.1	10.05	41.55	.1112
"	"	23	6.75	9.25	14.	9.75	339	1695	6	2.	9.75	215	124	36.6	37.20	8.68	42.	212	12.6	10.60	47.80	.122
300	**17**	17	6.75	6.75	11.0	7.75	198	920	4	2.	7.75	137	71	35.8	21.30	4.97	38.0	50	5.0	2.50	23.80	.0824
"	"	18	6.75	7.25	11.5	8.25	224	1120	4	2.5	8.25	159	76	34.0	22.80	5.32	32.6	56	5.0	2.80	25.60	.0836
"	"	19	6.75	7.78	12.25	8.5	245	1225	4	3.	8.75	171	74	30.2	22.20	5.18	37.6	82	6.7	4.10	26.30	.0815
"	"	20	6.75	8.00	13.0	9.0	272	1360	6	2.	9.75	182	90	33.1	27.00	6.3	39.8	160	11.8	8.00	35.00	.103
"	"	21	6.75	8.50	13.5	9.5	301	1505	6	2.	9.75	194	107	35.6	32.10	7.27	42.7	158	10.5	7.90	40.00	.112
"	"	22	6.75	8.75	14.5	10.0	333	1665	6	2.5	10.25	221	112	33.6	33.60	7.6	48.6	174	10.4	8.70	42.30	.1131
"	"	23	6.75	9.25	15.5	10.5	368	1840	6	3.	10.75	250	118	32.0	35.40	8.3	55.0	195	10.6	9.75	45.15	.1157
400	**17**	17	6.75	6.75	12.5	8.5	220	1100	4	3.	8.75	153	67	30.4	20.10	4.69	41.3	44	4.	2.20	22.30	.0772
"	"	18	6.75	7.25	13.0	9.0	246	1230	6	2.	9.75	165	81	32.9	24.30	5.66	44.5	110	9.	5.50	29.80	.0974
"	"	19	6.75	7.78	13.5	9.5	272	1360	6	2.	9.75	176	96	35.3	28.80	6.72	47.5	106	7.8	5.30	34.10	.1057
"	"	20	6.75	8.00	14.25	10.0	302	1510	6	2.5	10.25	201	101	33.5	30.30	6.86	54.2	118	7.8	5.90	36.20	.1065
"	"	21	6.75	8.50	15.0	10.5	333	1665	6	3.	10.75	226	107	32.2	32.10	7.27	61.0	135	8.1	6.75	38.85	.1089
"	"	22	6.75	8.75	16.0	11.0	367	1835	8	2.	11.75	253	114	31.1	34.20	7.75	68.3	212	11.6	10.60	44.80	.1199
"	"	23	6.75	9.25	17.0	11.5	403	2015	8	2.	11.75	259	144	35.7	43.20	10.1	70.0	222	10.1	11.10	54.30	.1890
500	**17**	17	6.75	6.75	13.5	9.5	244	1220	6	2.	9.75	157	87	35.6	26.10	6.09	50.3	37	3.	1.85	27.95	.0967
"	"	18	6.75	7.25	14.5	10.0	273	1365	6	2.5	10.25	182	91	33.4	27.30	6.36	58.2	77	5.7	3.85	31.15	.1018
"	"	19	6.75	7.78	15.5	10.5	304	1520	6	3.	10.75	207	97	31.9	29.10	6.79	66.2	91	6.	4.55	33.65	.1042
"	"	20	6.75	8.00	16.5	11.0	332	1660	8	2.	11.75	219	113	34.0	33.90	7.68	70.0	160	9.7	8.00	41.90	.123
"	"	21	6.75	8.50	17.0	11.5	369	1845	8	2.	11.75	237	132	35.8	39.60	8.96	75.8	150	8.1	7.50	47.10	.132
"	"	22	6.75	8.75	18.0	12.0	403	2015	8	2.5	12.25	264	139	34.5	41.70	9.44	84.5	173	8.6	8.65	50.35	.1398
"	"	23	6.75	9.25	19.0	12.5	440	2200	8	3.	12.75	296	144	32.8	43.20	10.1	94.7	198	9.	9.90	53.10	.136

18 Foot Table

FLAT SLAB									RELIEVED SLAB													
			Drop Panel						Concrete							Weight		Steel			Total Value	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Stee Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**18**	18	7.25	7.25	8.5	6.25	179	895	4	2.	7.75	133	46	25.7	13.80	3.22	16.	181	20.2	9.05	22.85	.0706
"	"	19	7.25	7.75	8.75	6.5	196	980	4	2.	7.75	141	55	28.1	16.50	3.87	16.9	191	19.5	9.55	26.05	.0763
"	"	20	7.25	8.	9.	7.	220	1100	4	2.	7.75	150	70	31.8	21.00	4.9	18.	204	18.6	10.20	31.20	.0866
"	"	21	7.25	8.5	9.5	7.25	289	1155	4	2.	7.75	159	80	33.6	24.00	5.6	19.1	220	18.4	11.00	35.00	.0925
"	"	22	7.25	8.75	10.	7.5	261	1305	4	2.	7.75	169	92	35.4	27.60	6.44	20.3	238	18.3	11.90	39.50	.0997
"	"	23	7.25	9.25	10.5	7.75	283	1415	4	2.	7.75	180	105	36.4	30.90	7.21	21.6	267	19.8	13.35	44.25	.107
"	"	24	7.25	9.75	11.	8.25	305	1525	4	2.5	8.25	207	98	32.1	29.00	6.86	24.8	272	17.8	13.60	43.00	.0995
150	**18**	18	7.25	7.25	9.	6.75	193	965	4	2.	7.75	135	58	30.1	17.40	4.06	19.6	145	15.0	7.25	24.65	.076
"	"	19	7.25	7.75	9.5	7.	211	1050	4	2.	7.75	144	67	31.8	20.10	4.69	20.9	155	14.8	7.75	27.85	.0861
"	"	20	7.25	8.	10.	7.5	237	1185	4	2.	7.75	154	83	35.	24.90	5.8	22.3	133	11.2	6.65	31.55	.0876
"	"	21	7.25	8.5	11.	7.75	260	1300	4	2.	7.75	167	93	35.8	27.90	6.51	24.2	159	12.3	7.95	35.85	.0948
"	"	22	7.25	8.75	11.25	8.	281	1405	4	2.5	8.25	190	91	32.4	27.30	6.36	27.6	200	14.3	10.00	37.30	.0942
"	"	23	7.25	9.25	11.5	8.5	310	1550	4	3.	8.75	215	95	30.6	28.50	6.65	31.2	209	13.5	10.45	38.95	.0942
"	"	24	7.25	9.75	12.5	9.	345	1725	6	2.	9.75	231	114	33.	34.20	7.97	33.5	319	18.5	15.95	50.15	.116
200	**18**	18	7.25	7.25	9.75	7.25	207	1035	4	2.	7.75	138	69	33.3	20.70	4.83	23.4	106	10.2	5.30	26.00	.0803
"	"	19	7.25	7.75	10.	7.5	228	1140	4	2.	7.75	149	79	34.6	23.70	5.53	25.3	111	9.8	5.55	29.25	.0856
"	"	20	7.25	8.	11.25	8.	256	1280	4	2.5	8.25	173	83	32.4	24.90	5.81	29.4	129	10.1	6.45	31.35	.087
"	"	21	7.25	8.5	11.5	8.25	276	1380	4	2.5	8.25	182	94	34.	28.20	6.58	31.	134	9.7	6.70	34.90	.092
"	"	22	7.25	8.75	12.5	8.5	301	1505	4	3.	8.75	210	91	30.2	27.30	6.36	35.6	160	10.6	8.00	35.30	.0891
"	"	23	7.25	9.25	13.	9.	332	1660	6	2.	9.75	223	109	32.8	32.70	7.63	37.9	255	15.4	12.75	45.45	.1098
"	"	24	7.25	9.75	13.5	9.5	365	1825	6	2.	9.75	237	128	35.1	38.40	8.95	40.3	265	14.6	13.25	51.65	.1198
250	**18**	18	7.25	7.25	11.	7.75	224	1120	4	2.	7.75	144	80	35.8	24.00	5.6	28.	87	7.5	4.20	28.20	.087
"	"	19	7.25	7.75	11.5	8.	245	1225	4	2.5	8.25	172	73	29.8	21.90	5.11	33.5	93	7.6	4.65	26.50	.0775
"	"	20	7.25	8.	12.	8.5	272	1360	4	3.	8.75	189	86	24.9	24.80	5.81	36.8	113	8.3	5.65	30.55	.0848
"	"	21	7.25	8.5	13.	8.75	298	1490	4	3.	8.75	204	94	31.6	28.20	6.58	39.8	170	11.4	8.50	36.70	.097
"	"	22	7.25	8.75	13.5	9.25	328	1640	6	2.	9.75	216	112	34.1	33.60	7.84	42.1	255	12.9	12.75	46.35	.1171
"	"	23	7.25	9.25	14.	9.75	361	1805	6	2.	9.75	229	132	36.6	39.60	9.24	44.6	192	10.6	9.60	49.20	.119
"	"	24	7.25	9.75	15.	10.	389	1945	6	2.5	10.25	261	128	39.6	38.40	8.95	50.9	244	12.6	12.20	50.60	.1172
300	**18**	18	7.25	7.25	11.5	8.25	237	1185	4	2.5	8.25	162	75	31.6	22.50	5.25	35.6	59	5.1	2.95	25.90	.0786
"	"	19	7.25	7.75	12.	8.5	258	1290	4	3.	8.75	180	78	30.2	23.40	5.46	39.6	80	6.2	4.00	27.40	.0801
"	"	20	7.25	8.	13.	9.	290	1450	6	2.	9.75	195	95	32.8	28.50	6.65	42.9	169	11.7	8.45	36.95	.1026
"	"	21	7.25	8.5	13.5	9.5	319	1595	6	2.	9.75	207	112	35.2	33.60	7.85	45.5	162	10.2	8.10	41.70	.1102
"	"	22	7.25	8.75	14.5	10.	353	1765	6	2.5	10.25	236	117	33.2	35.10	8.2	51.9	184	10.4	9.20	44.30	.1119
"	"	23	7.25	9.25	15.	10.5	388	1940	6	3.	10.75	264	124	32.	37.20	8.69	58.	207	10.6	10.35	47.55	.1150
"	"	24	7.25	9.75	16.	10.75	419	2095	6	3.	10.75	282	137	32.8	41.10	9.59	62.	237	11.3	11.80	52.95	.122
400	**18**	18	7.25	7.25	13.	9.	259	1295	6	2.	9.75	174	85	32.8	25.50	5.95	47.	110	8.5	5.50	31.00	.0956
"	"	19	7.25	7.75	14.	9.5	291	1455	6	2.	9.75	189	102	35.1	30.60	7.15	51.1	109	7.5	5.45	36.05	.1053
"	"	20	7.25	8.	14.5	10.	322	1610	6	2.5	10.25	214	108	33.6	32.40	7.57	57.8	148	9.2	7.40	39.80	.1105
"	"	21	7.25	8.5	15.	10.5	354	1770	6	3.	10.75	240	114	32.2	34.20	7.99	64.9	142	8.1	7.10	41.30	.1092
"	"	22	7.25	8.75	16.	11.	389	1945	8	2.	11.75	258	131	33.7	39.30	9.17	69.7	218	11.2	10.90	50.20	.1269
"	"	23	7.25	9.25	17.	11.5	427	2135	8	2.	11.75	276	151	35.4	45.30	10.57	73.5	207	9.7	10.35	55.65	.1347
"	"	24	7.25	9.75	17.5	12.	460	2300	8	2.5	12.25	305	155	33.7	46.50	10.85	82.5	236	10.3	11.80	58.30	.135
500	**18**	18	7.25	7.25	14.5	10.	286	1430	6	2.5	10.25	191	95	33.2	28.50	6.65	61.1	79	5.5	3.95	32.45	.10
"	"	19	7.25	7.75	15.5	10.5	322	1610	6	3.	10.75	220	102	31.7	30.60	7.15	70.4	100	6.2	5.00	35.60	.104
"	"	20	7.25	8.	16.5	11.	357	1785	8	2.	11.75	237	120	33.6	36.00	8.4	75.8	168	9.4	8.40	44.40	.1232
"	"	21	7.25	8.5	17.	11.5	390	1950	8	2.	11.75	251	139	35.7	41.70	9.74	80.3	153	7.8	7.65	49.35	.1306
"	"	22	7.25	8.75	18.	12.	428	2140	8	2.5	12.25	281	147	34.4	44.10	10.3	89.9	176	8.2	8.80	52.90	.1335
"	"	23	7.25	9.25	19.	12.5	468	2340	8	3.	12.75	315	153	32.4	45.90	10.7	100.8	173	7.4	8.65	54.55	.132
"	"	24	7.25	9.75	20.	13.	506	2530	10	2.	13.75	342	164	32.4	49.20	11.48	109.2	282	11.1	14.10	63.30	.1468

19 Foot Table

FLAT SLAB									RELIEVED SLAB												
			DROP PANEL						CONCRETE							WEIGHT		STEEL			TOTAL VALUE	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Steel Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**19**	19	7.75	7.75	9.	6.5	209	1045	4	2.	7.75	151	58	27.8	17.40	4.06	18.1	202	19.3	10.10	27.50	.0762
"	"	20	7.75	8.00	9.5	7.0	248	1240	4	2.	7.75	160	78	31.4	23.40	5.46	20.2	228	19.4	11.00	34.80	.0915
"	"	21	7.75	8.50	9.75	7.25	254	1270	4	2.	7.75	170	84	33.0	25.20	5.88	20.4	232	18.3	11.60	36.80	.0922
"	"	22	7.75	8.75	10.00	7.5	275	1375	4	2.	7.75	179	96	34.9	28.80	6.72	21.5	241	17.5	12.05	40.80	.0976
"	"	23	7.75	9.25	10.25	7.75	298	1490	4	2.	7.75	180	108	36.2	32.40	7.56	22.8	267	17.9	13.35	45.75	.102
"	"	24	7.75	9.75	10.75	8.25	331	1655	4	2.5	8.25	218	113	34.1	33.90	7.9	26.2	288	17.4	14.40	48.30	.1058
"	"	25	7.75	10.00	11.25	8.5	354	1770	4	3.	8.75	245	109	30.8	32.70	7.63	29.4	316	17.6	15.55	48.25	.1015
150	**19**	19	7.75	7.75	9.75	7.	225	1125	4	2.	7.75	155	70	31.1	21.00	4.9	22.4	161	14.3	8.05	29.05	.0806
"	"	20	7.75	8.00	10.25	7.5	248	1240	4	2.	7.75	164	84	33.8	25.20	5.88	23.8	162	13.1	8.10	33.30	.0876
"	"	21	7.75	8.50	10.75	7.75	274	1370	4	2.	7.75	175	99	36.2	29.70	6.93	25.4	170	12.4	8.50	38.20	.0957
"	"	22	7.75	8.75	11.50	8.0	298	1490	4	2.5	8.25	202	96	32.2	28.80	6.72	29.3	194	13.	9.70	38.50	.0920
"	"	23	7.75	9.25	11.75	8.5	328	1640	4	3.	8.75	227	101	30.8	30.30	7.07	32.9	213	13.	10.65	40.95	.0936
"	"	24	7.75	9.75	12.25	9.	363	1815	6	2.	9.75	242	121	33.3	36.30	8.46	35.1	333	18.4	16.65	42.95	.094
"	"	25	7.75	10.00	12.75	9.25	389	1945	6	2.	9.75	255	134	34.5	40.20	9.38	37.	345	17.7	17.25	57.45	.1207
200	**19**	19	7.75	7.75	10.5	7.5	242	1210	4	2.	7.75	159	83	34.3	24.90	5.81	27.	115	9.5	5.75	30.65	.085
"	"	20	7.75	8.00	11.25	8.0	270	1350	4	2.5	8.25	183	87	32.2	26.10	6.08	31.1	134	10.0	6.70	32.80	.0864
"	"	21	7.75	8.50	12.	8.25	294	1470	4	2.5	8.25	197	97	33.0	29.30	6.79	33.4	136	9.3	6.80	35.90	.0899
"	"	22	7.75	8.75	12.5	8.5	320	1600	4	3.	8.75	223	97	30.3	29.10	6.79	37.9	164	10.5	8.20	37.30	.0892
"	"	23	7.75	9.25	13.5	9.0	354	1770	6	2.	9.75	238	116	32.8	34.80	8.12	40.5	255	14.4	12.75	47.55	.109
"	"	24	7.75	9.75	14.	9.5	389	1945	6	2.	9.75	253	136	35.0	40.80	9.51	43.	278	14.3	13.90	54.70	.12
"	"	25	7.75	10.00	14.5	10.0	424	2120	6	2.5	10.25	283	141	33.3	42.40	9.86	48.	303	14.3	15.15	57.45	.1209
250	**19**	19	7.75	7.75	11.75	8.0	260	1300	4	2.5	8.25	177	83	31.9	24.90	5.81	34.5	98	7.5	4.90	29.80	.0825
"	"	20	7.75	8.00	12.25	8.5	288	1440	4	3.	8.75	201	87	30.2	26.10	6.09	39.2	133	9.3	6.65	32.75	.086
"	"	21	7.75	8.50	12.75	8.75	312	1560	4	3.	8.75	215	97	31.2	29.10	6.97	41.9	116	7.5	5.80	34.90	.0875
"	"	22	7.75	8.75	13.5	9.25	346	1730	6	2.	9.75	228	118	34.1	35.40	8.25	44.5	211	12.2	10.55	45.95	.1099
"	"	23	7.75	9.25	14.	9.75	380	1900	6	2.	9.75	241	139	36.6	41.70	9.72	47.	226	11.9	11.30	53.00	.1212
"	"	24	7.75	9.75	14.5	10.0	408	2040	6	2.5	10.25	272	136	33.3	40.80	9.51	53.	248	12.2	12.40	53.20	.1165
"	"	25	7.75	10.00	15.25	10.5	464	2320	6	3.	10.75	304	160	34.6	48.00	11.2	59.2	276	11.9	13.80	61.80	.1301
300	**19**	19	7.75	7.75	12.5	8.5	277	1385	4	3.	8.75	194	83	29.8	27.90	5.8	42.7	87	6.3	4.35	32.25	.0895
"	"	20	7.75	8.00	13.	9.0	305	1525	6	2.	9.75	205	100	32.8	30.00	7.	45.1	174	12.4	8.70	38.70	.105
"	"	21	7.75	8.50	13.75	9.5	338	1690	6	2.	9.75	220	118	34.8	35.40	7.55	48.4	169	10.0	8.45	43.85	.11
"	"	22	7.75	8.75	14.25	10.0	373	1865	6	2.5	10.25	248	125	33.5	37.50	8.75	54.5	195	10.5	9.75	47.25	.113
"	"	23	7.75	9.25	15.	10.5	410	2050	6	3.	10.75	279	131	31.9	39.30	9.16	61.4	208	10.2	10.40	49.70	.1138
"	"	24	7.75	9.75	15.75	10.75	440	2200	6	3.	10.75	296	144	32.8	43.20	10.08	65.1	216	9.9	10.80	54.00	.1182
"	"	25	7.75	10.00	16.5	11.25	478	2300	8	2.	11.75	313	165	34.5	49.50	11.55	68.8	315	13.2	15.75	65.25	.1344
400	**19**	19	7.75	7.75	13.75	9.5	307	1535	6	2.	9.75	200	107	34.8	32.10	7.49	54.	115	7.5	5.75	37.85	.1049
"	"	20	7.75	8.00	14.5	10.0	339	1695	6	2.5	10.25	227	112	33.0	33.60	7.84	61.2	128	7.6	6.40	40.00	.1052
"	"	21	7.75	8.50	15.	10.5	373	1865	6	3.	10.75	254	119	31.9	35.70	8.33	68.5	143	7.7	7.15	42.85	.1072
"	"	22	7.75	8.75	15.75	11.0	411	2055	8	2.	11.75	271	140	34.0	42.00	9.80	73.1	237	11.5	11.85	53.85	.1287
"	"	23	7.75	9.25	16.75	11.5	450	2250	8	2.	11.75	290	160	35.6	48.00	11.20	78.3	224	10.0	11.20	59.20	.1354
"	"	24	7.75	9.75	17.75	12.0	493	2465	8	2.5	12.25	324	169	34.3	50.70	11.82	87.5	253	10.2	12.65	63.35	.1392
"	"	25	7.75	10.00	18.25	12.5	537	2685	8	3.	12.75	358	179	33.3	53.70	12.52	96.6	285	10.6	14.25	67.95	.1400
500	**19**	19	7.75	7.75	15.25	10.5	340	1700	6	3.	10.75	232	108	31.8	32.40	7.55	74.3	94	5.5	4.70	37.10	.1028
"	"	20	7.75	8.00	16.25	11.0	377	1885	8	2.	11.75	249	128	33.9	38.40	8.95	79.7	170	9.0	8.50	46.90	.1234
"	"	21	7.75	8.50	17.25	11.5	414	2070	8	2.	11.75	268	146	35.4	43.80	10.21	85.8	163	7.9	8.15	51.95	.1300
"	"	22	7.75	8.75	18.	12.0	452	2260	8	2.5	12.25	297	155	34.3	46.50	10.84	95.	183	8.12	9.15	55.65	.1337
"	"	23	7.75	9.25	18.75	12.5	492	2460	8	3.	12.75	332	160	32.5	48.00	11.2	106.1	210	8.5	10.50	58.50	.134
"	"	24	7.75	9.75	19.5	13.0	536	2680	10	2.	13.75	361	175	32.6	52.50	12.5	115.3	294	11.0	14.70	67.20	.1471
"	"	25	7.75	10.00	20.5	13.0	579	2895	10	2.	13.75	379	200	34.6	60.00	14.0	122.	275	9.5	13.75	73.75	.1530

20 Foot Table

FLAT SLAB									RELIEVED SLAB													
			DROP PANEL						CONCRETE							WEIGHT		STEEL			TOTAL VALUE	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Steel Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**20**	20	8.00	8.	9.5	7.	241	1205	4	2.	7.75	166	75	31.1	22.50	5.25	19.9	220	18.3	11.00	33.50	.0837
"	"	21	8.00	8.5	10.0	7.25	269	1345	4	2.	7.75	180	89	33.1	26.70	6.23	21.6	266	10.8	13.30	40.00	.0953
"	"	22	8.00	8.75	10.25	7.5	291	1455	4	2.	7.75	189	102	35.1	30.60	7.15	22.7	260	17.9	13.00	43.60	.0992
"	"	23	8.00	9.25	10.5	7.75	314	1570	4	2.	7.75	200	114	36.3	34.20	7.98	24.0	264	16.8	13.20	47.40	.103
"	"	24	8.00	9.75	10.75	8.25	346	1730	4	2.5	8.25	228	118	34.1	35.40	8.26	27.3	294	17.4	14.70	47.70	.0994
"	"	25	8.00	10.00	11.00	8.5	372	1860	4	3.	8.75	257	115	30.9	34.50	8.05	30.8	325	17.5	16.25	50.75	.1015
"	"	26	8.00	10.50	11.50	9.	408	2040	6	2.	9.75	271	137	33.6	41.40	9.59	32.5	460	22.5	23.00	64.10	.1270
"	"	27	8.00	11.00	12.00	9.25	436	2180	6	2.	9.75	285	141	34.6	45.30	10.57	34.2	478	22.4	23.90	69.20	.1285
150	**20**	20	8.00	8.	10.5	7.5	261	1305	4	2.	7.75	171	90	34.5	27.00	6.29	24.8	166	12.8	8.30	35.30	.0882
"	"	21	8.00	8.5	11.	7.75	289	1445	4	2.	7.75	185	104	36.0	31.20	7.28	26.8	206	14.3	10.30	41.50	.0989
"	"	22	8.00	8.75	11.5	8.0	313	1565	4	2.5	8.25	211	101	32.3	30.30	7.07	30.6	205	13.1	10.25	40.55	.0925
"	"	23	8.00	9.25	12.	8.5	347	1735	4	3.	8.75	242	105	30.3	31.50	7.35	35.1	224	12.9	11.20	42.70	.0929
"	"	24	8.00	9.75	12.25	9.0	390	1950	6	2.	9.75	255	125	39.6	40.50	8.45	37.0	347	17.8	17.35	57.85	.1205
"	"	25	8.00	10.00	12.75	9.25	417	2085	6	2.	9.75	268	149	35.9	44.70	10.87	38.8	365	17.6	18.25	62.95	.126
"	"	26	8.00	10.50	13.	8.75	434	2170	6	2.	9.75	281	153	35.3	45.90	10.71	40.8	375	17.3	18.75	64.65	.1242
"	"	27	8.00	11.00	13.5	10.25	485	2425	6	2.5	10.25	321	164	33.8	42.90	11.48	46.5	400	16.5	20.00	69.20	.128
200	**20**	20	8.00	8.	11.5	8.0	379	1395	4	2.5	8.25	190	89	31.9	26.70	6.22	32.3	133	9.5	6.65	33.35	.0833
"	"	21	8.00	8.5	12.25	8.25	311	1555	4	2.5	8.25	207	104	33.4	31.30	7.28	35.2	122	7.9	6.10	37.30	.0889
"	"	22	8.00	8.75	12.75	8.5	337	1685	4	3.	8.75	236	101	30.0	30.30	7.07	40.1	171	10.2	8.55	38.88	.0885
"	"	23	8.00	9.25	13.25	9.0	372	1860	6	2.	9.75	250	122	32.8	36.60	8.55	42.5	284	15.3	14.20	50.80	.1105
"	"	24	8.00	9.75	13.75	9.5	407	2035	6	2.	9.75	264	143	35.2	42.90	10.00	44.8	292	14.4	14.60	57.50	.1200
"	"	25	8.00	10.00	14.20	10.0	445	2225	6	2.5	10.25	295	150	33.7	45.00	10.5	50.1	322	14.5	16.10	61.10	.1221
"	"	26	8.00	10.50	14.75	10.5	484	2420	6	3.	10.75	329	155	32.1	46.50	11.7	55.9	355	14.7	17.75	64.25	.1236
"	"	27	8.00	11.00	15.25	11.0	529	2645	8	2.	11.75	347	182	34.4	54.60	12.72	59.	475	17.9	23.75	78.35	.1450
250	**20**	20	8.00	8.	12.5	8.5	299	1495	4	3.	8.75	210	89	29.8	26.70	6.22	41.	120	8.	6.00	32.70	.0817
"	"	21	8.00	8.5	13.0	8.75	324	1620	4	3.	8.75	227	97	29.9	29.10	6.78	44.3	120	7.4	6.00	35.10	.0836
"	"	22	8.00	8.75	13.5	9.25	364	1820	6	2.	9.75	240	124	34.1	37.20	8.68	46.8	222	12.2	11.10	48.30	.0929
"	"	23	8.00	9.25	14.0	9.75	380	1900	6	2.	9.75	254	126	33.2	37.80	8.82	49.5	213	11.2	10.65	48.45	.0897
"	"	24	8.00	9.75	14.5	10.0	428	2140	6	2.5	10.25	286	142	33.2	42.60	9.94	55.8	259	12.1	12.95	55.55	.116
"	"	25	8.00	10.00	15.0	10.5	468	2340	6	3.	10.75	318	150	32.1	45.00	10.5	62.0	303	12.9	15.15	60.15	.1201
"	"	26	8.00	10.50	15.5	11.	510	2550	8	2.	11.75	335	175	34.4	52.50	12.25	65.4	390	15.6	19.50	72.00	.1385
"	"	27	8.00	11.00	16.0	11.5	551	2755	8	2.	11.75	352	199	36.1	59.70	13.92	68.7	445	16.1	22.25	81.95	.1517
300	**20**	20	8.00	8.	13.5	9.0	318	1590	6	2.	9.75	215	103	32.4	30.90	7.2	47.3	179	11.3	8.95	39.85	.0996
"	"	21	8.00	8.5	14.0	9.5	357	1785	6	2.	9.75	232	125	35.0	37.50	8.75	51.0	176	9.5	8.80	46.30	.1102
"	"	22	8.00	8.75	14.5	10.0	393	1965	6	2.5	10.25	262	131	33.4	39.30	9.16	57.6	200	10.2	10.00	49.30	.112
"	"	23	8.00	9.25	15.0	10.5	431	2155	6	3.	10.75	293	138	32.0	41.40	9.65	64.5	223	10.3	11.15	52.55	.1143
"	"	24	8.00	9.75	15.75	10.75	463	2315	6	3.	10.75	310	153	33.1	45.90	10.71	67.2	246	10.7	12.30	58.20	.1213
"	"	25	8.00	10.00	16.5	11.25	504	2520	8	2.	11.75	328	176	35.0	52.80	12.32	72.1	324	12.9	16.20	69.00	.1385
"	"	26	8.00	10.50	17.0	11.75	546	2730	8	2.	11.75	346	200	36.6	60.00	14.0	76.0	340	12.5	17.00	77.00	.1480
"	"	27	8.00	11.00	17.75	12.25	591	2955	8	2.5	12.25	382	209	35.4	62.70	14.63	84.0	372	12.6	19.60	82.30	.1525
400	**20**	20	8.00	8.	14.5	10.0	350	1750	6	2.5	10.25	233	117	33.4	35.10	8.18	63.0	136	7.8	6.80	41.90	.1048
"	"	21	8.00	8.5	15.0	10.5	393	1965	6	3.	10.75	267	126	32.0	37.80	8.81	72.0	155	7.9	7.75	45.55	.1086
"	"	22	8.00	8.75	15.75	11.0	433	2165	8	2.	11.75	284	149	34.4	44.70	10.41	76.6	288	13.3	14.40	59.10	.1342
"	"	23	8.00	9.25	16.5	11.5	472	2360	8	2.	11.75	303	169	35.8	50.70	11.82	81.8	229	9.7	11.45	62.15	.1351
"	"	24	8.00	9.75	17.5	12.0	515	2575	8	2.5	12.25	357	178	34.6	53.40	12.47	91.0	264	10.3	13.20	66.60	.1390
"	"	25	8.00	10.00	18.25	12.5	559	2795	8	3.	12.75	375	184	33.0	55.20	12.89	101.0	294	10.5	14.70	69.90	.140
"	"	26	8.00	10.50	19.	13.0	606	3030	10	2.	13.75	403	203	33.5	60.90	14.21	109.	354	11.7	17.70	78.60	.152
"	"	27	8.00	11.00	19.75	13.5	653	3265	10	2.	13.75	424	229	35.1	68.70	16.02	114.2	324	9.9	16.20	84.90	.157
500	**20**	20	8.00	8.	16.0	11.0	387	1935	8	2.	11.75	255	132	34.2	39.60	9.24	81.6	160	8.3	8.00	47.60	.119
"	"	21	8.00	8.5	17.0	11.5	433	2165	8	2.	11.75	279	154	35.6	46.20	10.79	89.2	171	7.9	8.55	54.75	.1302
"	"	22	8.00	8.75	18.0	12.0	475	2375	8	2.5	12.25	311	164	34.5	49.20	11.48	99.5	188	7.9	9.40	58.60	.1331
"	"	23	8.00	9.25	18.75	12.5	517	2585	8	3.	12.75	347	170	32.9	51.00	11.9	111.0	224	8.6	11.20	62.20	.1352
"	"	24	8.00	9.75	19.5	13.0	562	2810	10	2.	13.75	376	186	33.1	55.80	13.01	120.2	300	10.7	15.00	70.80	.1476
"	"	25	8.00	10.00	20.25	13.5	607	3035	10	2.	13.75	395	212	34.9	63.60	14.84	126.2	292	9.6	14.60	77.70	.1554
"	"	26	8.00	10.50	21.0	14.25	664	3820	10	2.5	14.25	436	228	34.4	68.70	15.96	139.7	308	9.3	15.40	83.80	.161
"	"	27	8.00	11.00	21.75	15.0	724	3620	12	2.	15.75	485	239	33.1	71.70	16.73	155.1	425	11.7	21.25	92.95	.172

21 Foot Table

FLAT SLAB									RELIEVED SLAB													
			DROP PANEL						CONCRETE							WEIGHT		STEEL			TOTAL VALUE	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Steel Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**21**	21	8.5	8.5	10.	7.25	282	1410	4	2.	7.75	187	95	26.8	28.50	6.65	22.4	240	17.	12.	40.50	.0918
"	"	22	8.5	8.75	10.5	7.5	307	1535	4	2.	7.75	201	106	34.6	31.80	7.42	24.1	267	17.4	13.35	45.15	.0976
"	"	23	8.5	9.25	11.	7.75	334	1670	4	2.	7.75	214	120	36.0	36.00	8.4	25.7	290	17.3	14.50	50.50	.1046
"	"	24	8.5	9.5	11.5	8.25	369	1845	4	2.5	8.25	244	125	33.9	37.50	8.75	29.3	288	15.6	14.40	51.90	.1029
"	"	25	8.5	10.0	12.	8.5	397	1985	4	3.	8.75	276	121	30.5	36.30	8.47	33.1	335	16.9	16.75	53.05	.1011
"	"	26	8.5	10.5	12.75	9.0	437	2185	6	2.	9.75	294	143	32.7	42.90	10.01	35.3	463	21.2	23.15	66.05	.121
"	"	27	8.5	10.75	13.25	9.25	468	2340	6	2.	9.75	308	160	34.2	48.00	11.2	37.	525	22.4	26.25	74.25	.131
"	"	28	8.5	11.25	13.75	9.75	510	2550	6	2.	9.75	323	187	36.7	56.10	13.09	38.8	553	21.7	27.65	83.75	.1424
150	**21**	21	8.5	8.5	11.25	7.75	305	1525	4	2.	7.75	196	109	35.7	32.70	7.63	28.4	180	11.8	9.00	41.70	.0945
"	"	22	8.5	8.75	11.75	8.00	330	1650	4	2.5	8.25	224	106	32.1	31.80	7.42	32.4	208	12.6	10.40	42.20	.0914
"	"	23	8.5	9.25	12.25	8.5	368	1840	4	3.	8.75	256	112	30.4	33.60	7.84	37.1	230	12.5	11.50	45.10	.0935
"	"	24	8.5	9.5	13.0	9.0	407	2035	6	2.	9.75	272	135	33.2	40.50	9.45	39.7	366	18.0	18.30	58.80	.1167
"	"	25	8.5	10.0	13.5	9.25	435	2175	6	2.	9.75	287	148	34.1	44.40	10.36	41.5	387	17.8	19.35	63.75	.1215
"	"	26	8.5	10.5	14.0	9.75	475	2375	6	2.	9.75	303	172	36.2	51.60	12.04	44.0	408	17.2	20.40	72.00	.132
"	"	27	8.5	10.75	14.75	10.25	517	2585	6	2.5	10.25	339	178	34.4	53.40	12.46	49.1	430	16.6	21.50	74.90	.132
"	"	28	8.5	11.25	15.5	10.75	565	2825	6	3.	10.75	379	186	32.9	55.80	13.02	54.9	466	16.5	23.30	79.10	.1343
200	**21**	21	8.5	8.5	12.25	8.25	328	1640	4	2.5	8.25	219	109	33.2	32.70	7.63	37.2	147	9.	7.35	40.05	.0909
"	"	22	8.5	8.75	12.75	8.5	354	1770	4	3.	8.75	248	106	29.9	31.80	7.42	42.2	173	9.8	8.65	40.65	.088
"	"	23	8.5	9.25	13.5	9.0	392	1960	6	2.	9.75	264	128	32.7	38.40	8.96	44.9	290	14.8	14.50	52.90	.1095
"	"	24	8.5	9.5	14.25	9.5	430	2150	6	2.	9.75	280	150	34.9	45.00	10.5	47.6	303	14.1	15.15	60.15	.1193
"	"	25	8.5	10.0	15.0	10.0	473	2365	6	2.5	10.25	316	157	33.2	47.10	10.99	53.7	326	13.8	16.30	63.40	.1208
"	"	26	8.5	10.5	15.5	10.5	515	2575	6	3.	10.75	351	164	31.8	49.20	11.48	59.6	306	11.9	15.30	64.50	.1181
"	"	27	8.5	10.75	16.25	11.0	561	2805	8	2.	11.75	371	190	33.9	57.00	13.3	63.0	494	17.6	24.70	81.70	.1442
"	"	28	8.5	11.25	17.0	11.5	608	3040	8	2.	11.75	390	218	35.8	65.40	15.26	66.4	520	17.1	26.00	91.40	.1549
250	**21**	21	8.5	8.5	13.25	8.75	350	1750	4	3.	8.75	241	109	31.2	32.70	7.63	47.0	122	7.	6.10	38.80	.088
"	"	22	8.5	8.75	14.00	9.25	385	1925	6	2.	9.75	255	130	33.8	39.00	9.1	49.7	235	12.2	11.75	50.75	.1099
"	"	23	8.5	9.25	14.75	9.75	426	2130	6	2.	9.75	272	154	36.2	46.20	10.78	53.0	228	10.7	11.40	57.60	.1192
"	"	24	8.5	9.5	15.25	10.0	456	2280	6	2.5	10.25	305	151	33.1	45.30	10.57	59.5	271	11.9	13.55	58.85	.1168
"	"	25	8.5	10.0	16.0	10.5	498	2490	6	3.	10.75	341	157	31.6	47.10	10.99	66.5	294	11.8	14.70	61.80	.1179
"	"	26	8.5	10.5	16.5	11.0	542	2710	8	2.	11.75	360	182	33.6	54.60	12.74	70.2	411	15.2	20.55	75.15	.1377
"	"	27	8.5	10.75	17.5	11.5	590	2950	8	2.	11.75	381	209	35.4	62.70	14.63	74.4	428	14.5	21.40	84.10	.1485
"	'	28	8.5	11.25	18.25	12.0	638	3190	8	2.5	12.25	419	219	34.3	65.70	15.33	81.6	472	14.8	23.60	89.30	.1520
300	**21**	21	8.5	8.5	14.25	9.5	378	1890	6	2.	9.75	378	133	35.2	39.90	9.31	53.9	179	9.5	8.95	48.85	.0994
"	"	22	8.5	8.75	15.0	10.0	416	2080	6	2.5	10.25	416	138	33.2	41.40	9.66	61.2	194	9.3	9.70	51.10	.1108
"	"	23	8.5	9.25	15.75	10.5	456	2280	6	3.	10.75	456	144	34.6	43.20	10.08	68.6	228	10.0	11.40	54.60	.113
"	"	24	8.5	9.5	16.5	10.75	489	2445	6	3.	10.75	489	159	32.5	47.70	11.13	72.6	232	9.5	11.60	59.30	.1178
"	"	25	8.5	10.0	17.0	11.25	533	2665	8	2.	11.75	533	184	34.6	55.20	12.88	76.8	352	13.2	17.60	72.80	.1389
"	"	26	8.5	10.5	17.75	11.75	575	2875	8	2.	11.75	575	205	35.7	61.50	14.35	81.5	356	12.4	17.30	78.80	.1442
"	"	27	8.5	10.75	18.5	12.25	625	3125	8	2.5	12.25	625	219	35.0	65.70	15.33	89.4	391	12.5	19.55	85.25	.152
"	"	28	8.5	11.25	19.25	12.75	677	3385	8	3.	12.75	677	228	33.7	68.40	15.96	98.8	432	12.8	21.60	90.00	.153
400	**21**	21	8.5	8.5	16.0	10.5	419	2095	6	3.	10.75	419	132	31.5	39.60	9.24	77.5	147	7.	7.35	46.95	.0955
"	"	22	8.5	8.75	16.75	11.0	458	2290	8	2.	11.75	458	153	33.4	45.90	10.71	82.4	268	11.7	13.4	59.30	.1283
"	"	23	8.5	9.25	17.5	11.5	502	2510	8	2.	11.75	502	178	35.5	53.40	12.46	87.5	238	9.5	11.9	65.30	.1351
"	"	24	8.5	9.5	18.25	12.0	596	2730	8	2.5	12.25	546	187	34.2	56.10	13.09	97.	278	10.2	13.9	70.00	.139
"	"	25	8.5	10.0	19.0	12.5	593	2965	8	3.	12.75	593	194	32.7	58.20	13.58	107.6	306	10.3	15.3	73.50	.14
"	"	26	8.5	10.5	19.75	13.0	641	3205	10	2.	13.75	641	211	32.9	63.30	14.77	116.	423	13.2	21.15	84.45	.1547
"	"	27	8.5	10.75	20.25	13.5	689	3445	10	2.	13.75	689	240	34.9	72.00	16.80	121.	404	11.7	20.2	92.20	.1626
"	"	28	8.5	11.25	21.5	14.25	756	3780	10	2.5	14.25	756	259	34.3	77.70	18.13	134.2	427	11.3	21.35	99.05	.1682
500	**21**	21	8.5	8.5	17.5	11.5	458	2290	8	2.	11.75	458	161	35.1	48.30	11.27	95.0	167	7.3	8.35	56.65	.1286
"	"	22	8.5	8.75	18.25	12.0	501	2505	8	2.5	12.25	501	172	34.3	51.60	12.04	105.2	190	7.6	9.50	61.10	.1322
"	"	23	8.5	9.25	19.0	12.5	545	2725	8	3.	12.75	545	180	33.	54.00	12.60	116.9	224	8.2	11.20	65.20	.135
"	"	24	8.5	9.5	20.0	13.0	610	3050	10	2.	13.75	610	213	34.8	63.90	14.91	127.0	323	10.6	16.15	80.05	.1599
"	"	25	8.5	10.0	20.5	13.5	640	3200	10	2.	13.75	640	222	34.7	66.60	15.54	133.8	316	9.9	15.80	82.40	.157
"	"	26	8.5	10.5	21.25	14.25	700	3500	10	2.5	14.25	700	239	34.1	71.70	16.73	147.7	326	9.3	16.30	88.00	.1611
"	"	27	8.5	10.75	22.5	15.0	765	3825	12	2.	15.75	765	251	32.8	75.30	17.57	164.2	448	11.7	22.40	97.70	.1723
"	"	28	8.5	11.25	23.5	15.75	834	4170	12	2.	15.75	834	291	34.9	87.30	20.37	174.0	442	10.6	22.10	99.40	.1688

22 Foot Table

FLAT SLAB									RELIEVED SLAB												
			DROP PANEL						CONCRETE							WEIGHT		STEEL			TOTAL VALUE	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Steel Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**22**	22	8.75	8.75	10.5	7.5	321	1605	4	2.	7.75	209	112	34.9	33.60	7.84	25.1	281	17.5	14.05	47.65	.0985
"	"	23	8.75	9.25	11.0	7.75	348	1740	4	2.	7.75	223	125	35.9	37.50	8.75	26.8	290	16.7	14.50	52.00	.1029
"	"	24	8.75	9.5	11.5	8.25	383	1915	4	2.5	8.25	255	128	33.2	38.40	8.96	30.6	302	15.8	15.10	53.50	.1012
"	"	25	8.75	10.0	12.0	8.5	415	2075	4	3.	8.75	289	126	30.3	37.80	8.82	34.7	348	16.8	17.40	55.20	.1002
"	"	26	8.75	10.5	12.75	9.0	458	2290	6	2.	9.75	307	151	33.0	45.30	10.57	36.8	506	22.1	25.30	70.60	.1235
"	"	27	8.75	10.75	13.25	9.25	489	2445	6	2.	9.75	322	167	34.2	50.10	11.69	38.6	541	22.1	27.05	77.15	.13
"	"	28	8.75	11.25	13.75	9.75	528	2640	6	2.	9.75	336	192	36.4	57.60	13.44	40.4	586	22.2	29.30	86.90	.141
"	"	29	8.75	11.50	14.5	10.5	592	2960	6	3.	10.75	400	192	32.4	57.60	13.44	48.0	627	21.2	31.35	88.95	.1392
150	**22**	22	8.75	8.75	11.75	8.0	346	1730	4	2.5	8.25	234	112	32.2	33.60	7.84	34.0	216	12.5	10.80	44.40	.0917
"	"	23	8.75	9.25	12.25	8.5	384	1920	4	3.	8.75	268	116	30.2	34.80	8.12	38.8	211	11.0	10.55	45.35	.0896
"	"	24	8.75	9.5	13.00	9.0	424	2120	6	2.	9.75	285	139	32.8	41.70	9.73	41.3	377	17.8	18.85	60.55	.1149
"	"	25	8.75	10.0	13.5	9.25	455	2275	6	2.	9.75	300	155	34.1	46.50	10.85	43.5	402	17.7	20.10	66.60	.1212
"	"	26	8.75	10.5	14.0	9.75	495	2475	6	2.	9.75	316	179	36.2	53.70	12.53	45.8	418	16.9	20.90	74.60	.1306
"	"	27	8.75	10.75	14.75	10.25	543	2715	6	2.5	10.25	355	188	34.6	56.40	13.16	51.4	459	16.9	22.95	79.35	.1337
"	"	28	8.75	11.25	15.5	10.75	586	2930	6	3.	10.75	392	194	33.1	58.20	13.58	56.8	503	17.2	25.15	83.35	.1351
"	"	29	8.75	11.50	16.0	11.25	639	3195	8	2.	11.75	414	225	35.2	67.50	15.75	60.0	665	20.8	33.25	100.75	.158
200	**22**	22	8.75	8.75	12.75	8.5	370	1850	4	3.	8.75	259	111	30.0	33.30	7.77	44.	180	9.8	9.00	42.30	.0875
"	"	23	8.75	9.25	13.5	9.0	410	2050	6	2.	9.75	276	134	32.7	40.20	9.38	47.	299	14.6	14.95	55.15	.109
"	"	24	8.75	9.5	14.25	9.5	452	2260	6	2.	9.75	294	158	35.0	47.40	11.06	50.	314	13.9	15.70	63.10	.1196
"	"	25	8.75	10.0	15.0	10.0	495	2475	6	2.5	10.25	330	165	33.4	49.50	11.55	56.1	446	14.0	17.30	66.80	.1215
"	"	26	8.75	10.5	15.5	10.5	539	2695	6	3.	10.75	367	172	31.9	51.60	12.04	62.4	378	14.0	18.90	70.50	.1232
"	"	27	8.75	10.75	16.25	11.0	586	2930	8	2.	11.75	389	197	33.6	59.10	13.79	66.1	525	17.9	26.25	85.35	.1437
"	"	28	8.75	11.25	17.0	11.5	632	3160	8	2.	11.75	407	225	35.6	67.50	15.75	69.1	544	17.2	27.20	94.70	.1538
"	"	29	8.75	11.50	17.5	12.0	685	3425	8	2.5	12.25	448	237	34.6	71.10	16.59	76.2	585	17.1	29.25	100.35	.1574
250	**22**	22	8.75	8.75	14.0	9.25	403	2015	6	2.	9.75	267	136	33.7	40.80	9.52	52.0	242	12.0	12.10	52.90	.1091
"	"	23	8.75	9.25	14.75	9.75	444	2226	6	2.	9.75	284	160	36.1	48.00	11.20	55.5	233	10.5	11.65	59.65	.118
"	"	24	8.75	9.5	15.25	10.0	476	2380	6	2.5	10.25	320	156	32.7	46.80	10.92	62.4	276	11.6	13.80	60.60	.1149
"	"	25	8.75	10.0	16.0	10.5	522	2610	6	3.	10.75	356	166	31.8	49.80	11.62	69.5	316	12.2	15.80	65.60	.1192
"	"	26	8.75	10.5	16.5	11.0	566	2830	8	2.	11.75	376	190	33.5	57.00	13.30	73.4	441	15.6	22.05	79.05	.1382
"	"	27	8.75	10.75	17.5	11.5	617	3085	8	2.	11.75	399	218	35.3	65.40	15.26	77.8	450	14.6	22.50	87.90	.1480
"	"	28	8.75	11.25	18.25	12.0	664	3320	8	2.5	12.25	435	229	34.5	68.70	16.03	84.8	491	14.8	24.55	93.25	.1512
"	"	29	8.75	11.50	18.75	12.5	717	3585	8	3.	12.75	482	235	32.8	70.50	16.45	94.0	523	14.6	26.15	96.65	.1515
300	**22**	22	8.75	8.75	15.0	10.0	434	2170	6	2.5	10.25	434	144	33.2	43.20	10.08	63.8	206	9.5	10.30	53.50	.1107
"	"	23	8.75	9.25	15.75	10.5	478	2390	6	3.	10.75	478	152	31.8	45.60	10.64	71.7	234	9.8	11.70	57.30	.1131
"	"	24	8.75	9.5	16.5	10.75	513	2565	6	3.	10.75	513	167	32.6	50.10	11.69	76.	240	9.4	12.00	62.10	.1178
"	"	25	8.75	10.0	17.0	11.25	557	2785	8	2.	11.75	557	193	34.7	57.90	13.51	80.	360	12.9	18.00	75.90	.1381
"	"	26	8.75	10.5	17.75	11.75	606	3030	8	2.	11.75	606	220	36.2	66.00	15.40	84.9	436	14.4	21.80	87.80	.1535
"	"	27	8.75	10.75	18.5	12.25	656	3280	8	2.5	12.25	656	232	35.3	69.60	16.24	93.1	412	12.6	20.60	90.20	.152
"	"	28	8.75	11.25	19.25	12.75	703	3515	8	3.	12.75	703	236	33.6	70.80	16.52	102.8	436	12.4	21.80	92.60	.1506
"	"	29	8.75	11.50	20.0	13.25	762	3810	10	2.	13.75	762	260	34.1	78.00	18.20	110.3	577	15.2	28.85	106.85	.1673
400	**22**	22	8.75	8.75	16.75	11.0	480	2400	8	2.	11.75	480	155	32.3	46.50	10.85	87.8	258	10.8	12.90	59.40	.1228
"	"	23	8.75	9.25	17.5	11.5	526	2630	8	2.	11.75	526	187	35.5	56.10	13.09	91.5	248	9.4	12.40	68.50	.1352
"	"	24	8.75	9.5	18.25	12.0	572	2860	8	2.5	12.25	572	196	34.3	58.80	13.72	101.4	274	9.6	13.70	72.50	.1373
"	"	25	8.75	10.0	19.0	12.5	621	3105	8	3.	12.75	621	264	32.8	61.20	14.28	112.8	224	7.2	11.20	72.40	.1318
"	"	26	8.75	10.5	19.75	13.0	671	3350	10	2.	13.75	671	222	33.1	66.60	15.54	121.6	419	12.5	20.95	87.55	.1531
"	"	27	8.75	10.75	20.25	13.5	722	3610	10	2.	13.75	722	251	34.8	75.30	17.57	127.7	425	11.8	21.25	96.55	.163
"	"	28	8.75	11.25	21.5	14.25	785	3925	10	2.5	14.25	785	270	34.4	81.00	18.90	139.	435	11.1	21.75	102.75	.1665
"	"	29	8.75	11.50	22.25	14.75	849	4245	10	3.	14.75	849	282	33.3	84.60	19.74	153.	480	11.3	24.00	108.60	.1702
500	**22**	22	8.75	8.75	18.25	12.	523	2615	8	2.5	12.25	523	180	34.4	54.00	12.60	108.7	203	7.8	10.15	64.15	.1328
"	"	23	8.75	9.25	19.0	12.5	571	2855	8	3.	12.75	571	187	32.8	56.10	13.09	123.	232	8.1	11.60	67.70	.1339
"	"	24	8.75	9.5	20.0	13.	622	3110	10	2.	13.75	622	205	33.0	61.50	14.35	133.2	326	10.5	16.30	77.80	.1473
"	"	25	8.75	10.0	20.5	13.5	670	3350	10	2.	13.75	670	234	34.9	70.20	16.38	139.6	321	9.6	16.05	86.25	.157
"	"	26	8.75	10.5	21.25	14.25	753	3665	10	2.5	14.25	733	252	34.4	75.60	17.64	154.	336	9.2	16.80	92.40	.1614
"	"	27	8.75	10.75	22.5	15.	802	4010	12	2.	15.75	802	263	32.8	78.90	18.41	172.3	456	11.4	22.80	101.70	.171
"	"	28	8.75	11.25	23.5	15.75	867	4335	12	2.	15.75	867	303	35.0	90.90	21.21	180.2	446	10.3	22.30	113.20	.1839
"	"	29	8.75	11.50	24.5	16.25	934	4630	12	2.5	16.25	934	317	34.0	95.10	22.19	197.3	366	7.9	18.30	113.40	.1778

23 Foot Table

FLAT SLAB									RELIEVED SLAB														
			Drop Panel						Concrete							Weight		Steel			Total Value	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Steel Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**23**	23	9.25	9.25	11.	7.75	364	1820	4	2.	7.75	233	131	36.	39.30	9.17	28.	346	17.	17.30	56.60	.1072
"	"	24	9.75	9.5	11.5	8.25	403	2015	4	2.5	8.25	265	138	34.2	41.40	9.66	31.8	332	16.5	16.60	58.00	.105
"	"	25	9.25	10.0	12.	8.5	436	2180	4	3.	8.75	302	134	30.7	40.20	9.38	36.2	368	16.9	18.40	58.60	.102
"	"	26	9.25	10.5	12.75	9.0	478	2390	6	2.	9.75	321	157	32.8	47.10	10.99	38.5	534	22.3	26.70	73.80	.1232
"	"	27	9.25	10.75	13.25	9.25	510	2550	6	2.	9.75	336	174	34.1	52.20	12.18	40.3	575	22.5	28.75	80.95	.1304
"	"	28	9.25	11.25	13.75	9.75	558	2790	6	2.	9.75	353	205	36.8	61.50	14.35	42.4	628	22.5	31.40	92.90	.1442
"	"	29	9.25	11.5	14.5	10.5	618	3090	6	3.	10.75	418	200	32.4	60.00	14.00	49.	668	21.6	33.40	93.40	.14
"	"	30	9.25	12.	15.0	11.0	669	3345	8	2.	11.75	441	228	34.1	68.40	15.96	53.	857	25.6	42.85	111.25	.163
150	**23**	23	9.25	9.25	12.25	8.5	403	2015	4	3.	8.75	280	123	30.5	36.90	8.61	40.6	241	12.0	12.05	48.95	.0926
"	"	24	9.25	9.5	13.0	9.0	435	2175	6	2.	9.75	297	138	31.7	41.40	9.66	43.	385	17.7	19.75	61.15	.1109
"	"	25	9.25	10.0	13.5	9.25	468	2340	6	2.	9.75	313	155	33.1	46.50	10.85	45.4	412	17.6	20.60	67.10	.1169
"	"	26	9.25	10.5	14.0	9.75	519	2595	6	2.	9.75	331	188	36.2	56.40	13.16	48.	444	17.1	22.20	78.60	.1314
"	"	27	9.25	10.75	14.75	10.25	568	2840	6	2.5	10.25	371	197	34.7	59.10	13.79	53.8	485	17.1	24.25	83.35	.1341
"	"	28	9.25	11.25	15.5	10.75	617	3085	6	3.	10.75	414	203	32.9	60.90	14.21	60.	634	17.3	31.70	92.60	.144
"	"	29	9.25	11.5	16.0	11.25	671	3355	8	2.	11.75	432	239	35.6	71.70	16.76	62.6	725	21.6	36.25	107.95	.162
"	"	30	9.25	12.	16.5	11.75	720	3606	8	2.	11.75	454	266	36.9	79.80	18.62	65.7	750	20.8	37.50	117.30	.1709
200	**23**	23	9.25	9.25	13.5	9.0	429	2145	6	2.	9.75	289	140	32.6	42.00	9.8	48.1	322	15.0	16.10	58.10	.11
"	"	24	9.25	9.5	14.25	9.5	470	2350	6	2.	9.75	306	164	34.9	49.20	11.48	52.	320	13.6	16.00	65.20	.1181
"	"	25	9.25	10.0	15.0	10.0	520	2600	6	2.5	10.25	346	174	33.5	52.20	12.18	58.9	369	14.2	18.45	70.65	.123
"	"	26	9.25	10.5	15.5	10.5	563	2815	6	3.	10.75	383	180	32.0	54.00	12.6	65.	394	14.0	19.70	73.70	.1231
"	"	27	9.25	10.75	16.25	11.0	611	3055	8	2.	11.75	405	206	33.7	61.80	14.42	68.8	547	17.9	27.35	89.15	.1438
"	"	28	9.25	11.25	17.0	11.5	663	3315	8	2.	11.75	428	235	35.4	70.50	16.45	72.7	580	17.5	29.00	99.50	.1546
"	"	29	9.25	11.5	17.5	12.	715	3575	8	2.5	12.25	467	248	34.4	74.40	17.36	79.4	628	17.6	31.40	105.80	.1588
"	"	30	9.25	12.	18.25	12.5	774	3870	8	3.	12.75	519	255	33.0	76.50	17.85	88.1	692	17.9	34.60	111.10	.1612
250	**23**	23	9.25	9.25	14.75	9.75	465	2325	6	2.	9.75	297	168	36.1	50.40	11.76	58.	249	10.7	12.45	62.85	.1189
"	"	24	9.25	9.5	15.25	10.0	499	2485	6	2.5	10.25	334	165	33.1	49.50	11.55	65.1	287	11.5	14.35	63.85	.1159
"	"	25	9.25	10.0	16.00	10.5	547	2735	6	3.	10.75	373	174	31.8	52.20	12.18	72.7	325	11.9	16.25	68.45	.119
"	"	26	9.25	10.5	16.5	11.0	590	2950	8	2.	11.75	393	197	33.4	59.10	13.79	76.6	451	15.3	22.55	81.65	.1365
"	"	27	9.25	10.75	17.5	11.5	644	3220	8	2.	11.75	416	228	35.4	68.40	15.96	81.1	457	14.2	22.85	91.25	.147
"	"	28	9.25	11.25	18.25	12.0	698	3490	8	2.5	12.25	459	239	34.3	71.70	16.73	89.5	526	15.1	26.30	98.00	.1522
"	"	29	9.25	11.5	18.75	12.5	749	3745	8	3.	12.75	503	246	32.9	73.80	17.22	98.1	573	15.3	28.65	102.45	.1539
"	"	30	9.25	12.	19.5	13.25	820	4600	10	2.	13.75	540	280	34.1	84.00	19.6	105.1	772	16.8	38.60	122.60	.1778
300	**23**	23	9.25	9.25	15.75	10.5	499	2495	6	3.	10.75	341	158	31.7	47.40	11.06	75.	243	9.8	12.15	59.95	.1132
"	"	24	9.25	9.5	16.5	10.75	536	2680	6	3.	10.75	361	175	32.6	52.50	12.25	79.5	244	9.0	12.20	64.70	.1171
"	"	25	9.25	10.0	17.0	11.25	584	2920	8	2.	11.75	382	202	34.6	60.60	14.14	84.	373	12.8	18.65	79.25	.138
"	"	26	9.25	10.5	17.75	11.75	633	3165	8	2.	11.75	403	230	36.3	69.00	16.10	88.6	392	12.4	19.60	88.60	.148
"	"	27	9.25	10.75	18.5	12.25	680	3400	8	2.5	12.25	444	236	34.7	70.80	16.52	97.6	432	12.7	21.60	92.40	.1489
"	"	28	9.25	11.25	19.25	12.75	741	3705	8	3.	12.75	493	248	33.4	74.40	17.36	108.2	466	12.6	23.30	97.70	.152
"	"	29	9.25	11.5	20.0	13.25	820	4100	10	2.	13.75	523	297	36.2	89.10	20.79	115.	671	16.4	33.55	122.65	.1839
"	"	30	9.25	12.	21.0	14.0	871	4355	10	2.5	14.25	578	293	33.6	87.90	20.51	127.	657	15.1	32.85	120.75	.175
400	**23**	23	9.25	9.25	17.5	11.5	550	2750	8	2.	11.75	355	195	35.4	58.50	13.65	95.8	199	7.3	9.95	68.45	.1292
"	"	24	9.25	9.5	18.25	12.0	597	2985	8	2.5	12.25	391	206	34.5	61.80	14.42	106.	285	9.6	14.25	76.05	.138
"	"	25	9.25	10.0	19.0	12.5	637	3185	8	3.	12.75	437	200	31.4	60.00	14.0	118.	320	10.0	16.00	76.00	.1321
"	"	26	9.25	10.5	19.75	13.0	707	3535	10	2.	13.75	470	237	33.5	71.10	16.59	127.	449	12.7	22.45	93.55	.1563
"	"	27	9.25	10.75	20.25	13.5	754	3770	10	2.	13.75	491	263	34.9	78.90	18.41	132.8	449	11.9	22.45	101.35	.1632
"	"	28	9.25	11.25	21.5	14.25	827	4135	10	2.5	14.25	544	283	34.2	84.90	19.81	147.	479	11.9	23.95	108.85	.169
"	"	29	9.25	11.5	22.25	14.75	886	4430	10	3.	14.75	592	294	33.2	88.20	20.58	160.	501	11.3	25.05	113.25	.17
"	"	30	9.25	12.	23.25	15.5	965	4825	12	2.	15.75	634	331	34.3	99.50	23.17	171.	661	13.7	33.05	132.35	.192
500	**23**	23	9.25	9.25	19.0	12.5	585	2925	8	3.	12.75	403	182	31.0	54.60	12.74	129.	241	8.3	12.05	66.65	.1261
"	"	24	9.25	9.5	20.0	13.0	653	3265	10	2.	13.75	434	219	33.6	65.70	15.33	139.	415	12.7	20.75	86.45	.1563
"	"	25	9.25	10.0	20.5	13.5	702	3510	10	2.	13.75	457	245	34.9	73.50	17.15	149.5	344	9.8	17.20	90.70	.1579
"	"	26	9.25	10.5	21.25	14.25	766	3830	10	2.5	14.25	503	263	34.3	78.90	18.41	161.	343	9.0	17.15	96.05	.1607
"	"	27	9.25	10.75	22.5	15.0	838	4190	12	2.	15.75	564	274	32.7	82.20	19.18	180.2	490	11.7	24.50	106.70	.167
"	"	28	9.25	11.25	23.5	15.75	913	4565	12	2.	15.75	594	319	34.9	95.70	22.33	190.	493	10.8	24.65	120.35	.1872
"	"	29	9.25	11.5	24.5	16.25	976	4880	12	2.5	16.25	643	333	34.1	99.90	23.31	206.	541	11.1	27.05	126.95	.1898
"	"	30	9.25	12.	25.25	17.0	1057	5285	12	3.5	17.25	725	332	31.4	99.60	23.24	232.	607	11.5	30.35	129.95	.1882

24 Foot Table

FLAT SLAB									RELIEVED SLAB												
			Drop Panel						Concrete							Weight		Steel			Total Value	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Steel Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**24**	24	9.5	9.5	11.5	8.25	418	2090	4	2.5	8.25	277	111	33.7	42.30	9.87	33.2	324	15.5	16.20	58.50	.1016
"	"	25	9.5	10.	12.	8.5	451	2255	4	3.	8.75	314	137	30.4	41.10	9.59	37.6	372	16.5	18.68	59.78	.0996
"	"	26	9.5	10.5	12.75	9.	498	2490	6	2.	9.75	334	164	32.9	49.20	11.48	40.	505	20.3	25.25	74.45	.1191
"	"	27	9.5	10.75	13.25	9.25	531	2655	6	2.	9.75	348	183	34.4	54.90	12.81	41.8	588	22.2	29.40	84.30	.1301
"	"	28	9.5	11.25	13.75	9.75	580	2900	6	2.	9.75	367	213	36.7	63.90	14.91	44.	580	20.0	29.00	92.90	.138
"	"	29	9.5	11.5	14.5	10.5	647	3235	6	3.	10.75	436	211	32.7	63.30	14.77	52.3	689	21.3	34.45	97.75	.14
"	"	30	9.5	12.	15.	11.	696	3480	8	2.	11.75	456	240	34.5	72.00	16.80	54.7	880	25.3	44.00	116.00	.161
150	**24**	24	9.5	9.5	13.	9.	460	2300	6	2.	9.75	307	153	33.3	45.90	10.71	44.5	396	17.2	19.80	65.70	.1141
"	"	25	9.5	10.	13.5	9.25	495	2475	6	2.	9.75	326	169	34.1	50.70	11.83	47.2	426	17.2	21.30	72.00	.12
"	"	26	9.5	10.5	14.	9.15	542	2710	6	2.	9.75	345	197	36.3	59.10	13.79	50.	450	16.6	22.50	81.60	.131
"	"	27	9.5	10.75	14.75	10.25	590	2950	6	2.5	10.25	385	205	34.7	61.50	14.35	55.7	495	16.8	24.75	86.25	.1331
"	"	28	9.5	11.25	15.5	10.75	641	3205	6	3.	10.75	428	213	33.2	63.90	14.91	62.	523	16.3	26.15	90.05	.134
"	"	29	9.5	11.5	16.	11.25	695	3475	8	2.	11.75	451	244	35.1	73.20	17.08	65.5	712	20.5	35.60	108.80	.1561
"	"	30	9.5	12.	16.5	11.75	749	3745	8	2.	11.75	471	278	37.2	83.40	19.46	67.3	753	20.1	37.65	121.05	.168
200	**24**	24	9.5	9.5	14.25	9.5	490	2450	6	2.	9.75	317	173	35.3	51.90	12.11	53.9	332	13.5	16.60	68.50	.119
"	"	25	9.5	10.	15.	10.	539	2695	6	2.5	10.25	359	180	33.4	54.00	12.60	61.	356	13.2	17.80	71.80	.1198
"	"	26	9.5	10.5	15.5	10.5	587	2935	6	3.	10.75	400	187	31.8	56.10	13.09	68.	413	14.1	20.65	76.75	.1231
"	"	27	9.5	10.75	16.25	11.	637	3185	8	2.	11.75	420	217	34.1	65.10	15.19	71.5	564	17.7	28.20	93.30	.144
"	"	28	9.5	11.25	17.	11.5	692	3460	8	2.	11.75	444	248	35.8	74.40	17.36	75.5	585	16.9	29.25	103.65	.154
"	"	29	9.5	11.5	17.5	12.	747	3735	8	2.5	12.25	487	260	34.8	78.00	18.2	82.8	630	16.9	31.50	109.50	.1572
"	"	30	9.5	12.	18.25	12.5	804	4020	8	3.	12.75	538	266	33.2	79.80	18.62	91.5	611	15.2	30.55	110.35	.1533
250	**24**	24	9.5	9.5	15.25	10.	518	2596	6	2.5	10.25	345	173	33.4	51.90	12.11	67.2	298	11.5	14.90	66.80	.116
"	"	25	9.5	10.	16.	10.5	567	2835	6	3.	10.75	386	181	31.9	54.30	12.67	75.2	339	12.	16.95	71.25	.189
"	"	26	9.5	10.5	16.5	11.	607	3035	8	2.	11.75	409	198	32.7	59.40	13.86	79.6	418	15.2	20.90	80.30	.1289
"	"	27	9.5	10.75	17.5	11.5	671	3355	8	2.	11.75	431	240	35.7	72.00	16.8	84.	488	14.6	24.40	96.40	.1488
"	"	28	9.5	11.25	18.25	12.	729	3635	8	2.5	12.25	477	250	34.4	75.00	17.5	93.	536	14.8	26.80	101.80	.1511
"	"	29	9.5	11.5	18.75	12.5	783	3915	8	3.	12.75	524	259	33.1	77.70	18.13	102.	572	14.6	28.60	106.30	.1529
"	"	30	9.5	12.	19.5	13.25	853	4265	10	2.	13.75	559	294	34.5	88.20	20.58	109.	705	16.5	35.25	123.45	.1715
300	**24**	24	9.5	9.5	16.5	10.75	557	2785	6	3.	10.75	374	183	32.9	54.90	12.81	82.2	320	11.5	16.00	70.90	.123
"	"	25	9.5	10.	17.	11.25	601	3005	8	2.	11.75	397	204	33.9	61.20	14.28	87.3	363	13.1	18.15	79.35	.1322
"	"	26	8.5	10.5	17.75	11.75	662	3310	8	2.	11.75	420	242	36.6	72.60	16.94	92.4	397	12.	19.85	92.45	.1481
"	"	27	9.5	10.75	18.5	12.25	722	3610	8	2.5	12.25	460	262	36.3	78.60	18.34	101.	455	12.6	22.75	101.35	.1568
"	"	28	9.5	11.25	19.25	12.75	770	3850	8	3.	12.75	511	259	33.6	77.70	18.13	112.5	466	12.1	23.30	101.00	.1502
"	"	29	9.5	11.5	20.	13.25	832	4160	10	2.	13.75	546	286	34.4	85.80	20.02	120.1	626	15.1	31.30	117.10	.1682
"	"	30	9.5	12.	21.	14.	873	4365	10	2.5	14.25	600	273	31.3	81.90	19.11	132.	628	14.4	31.40	113.30	.1578
400	**24**	24	9.5	9.5	18.25	12.	621	3105	8	2.5	12.25	407	214	34.4	64.20	14.98	110.	287	9.3	14.35	78.55	.1363
"	"	25	9.5	10.	19.	12.5	675	3375	8	3.	12.5	454	221	34.8	66.30	15.47	122.3	320	9.5	16.00	72.30	.1206
"	"	26	9.5	10.5	19.75	13.	732	3660	10	2.	13.75	489	243	33.2	72.90	17.01	132.	456	12.5	22.80	95.70	.1535
"	"	27	9.5	10.75	20.25	13.5	784	3920	10	2.	13.75	509	275	35.1	82.50	19.25	137.2	435	11.1	21.75	104.25	.1611
"	"	28	9.5	11.25	21.5	14.25	860	4300	10	2.5	14.25	564	296	34.4	88.80	20.72	152.	503	11.7	25.15	113.95	.1693
"	"	29	9.5	11.5	22.25	14.75	925	4625	10	3.	14.75	616	309	33.4	92.70	21.63	166.3	510	11.	25.50	118.20	.17
"	"	30	9.5	12.	23.25	15.5	1002	5010	12	2.	15.75	657	345	34.4	103.50	24.15	177.2	645	12.9	32.25	135.75	.1886
500	**24**	24	9.5	9.5	20.	13.	675	3375	10	2.	13.75	450	225	33.4	67.50	15.75	144.	344	10.2	17.20	84.70	.147
"	"	25	9.5	10.	20.5	13.5	729	3645	10	2.	13.75	474	255	35.	76.50	17.85	151.8	322	8.9	16.10	92.60	.1543
"	"	26	9.5	10.5	21.25	14.25	798	3990	10	2.5	14.25	524	274	34.3	83.20	19.18	167.5	350	8.8	17.50	99.70	.16
"	"	27	9.5	10.75	22.5	15.	871	4355	12	2.	15.75	584	287	33.	86.10	20.09	186.8	501	11.5	25.05	115.15	.1718
"	"	28	9.5	11.25	23.5	15.75	950	4750	12	2.	17.75	618	332	34.9	97.60	23.24	197.8	473	10.	23.65	123.25	.1638
"	"	29	9.5	11.5	24.5	16.25	1019	5095	12	2.5	16.25	670	349	33.	104.70	24.43	214.1	540	10.4	27.00	131.70	.189
"	"	30	9.5	12.	25.25	17.	1095	5075	12	3.5	17.25	751	344	31.4	103.20	24.08	242.	607	11.1	30.35	133.55	.1858

25 Foot Table

FLAT SLAB									RELIEVED SLAB												
			Drop Panel						Concrete							Weight		Steel			Total Value	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Steel Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**25**	25	10.	10.	12.	8.5	472	2360	4	3.	8.75	328	144	30.4	43.20	10.08	39.4	382	16.2	19.10	62.30	.0996
"	"	26	10.	10.5	12.75	9.	520	2600	6	2.	9.75	348	172	33.	51.60	12.04	41.7	570	21.9	28.50	80.10	.1233
"	"	27	10.	10.75	13.25	9.25	558	2790	6	2.	9.75	366	192	33.6	57.60	13.44	44.	597	21.4	29.85	87.45	.1296
"	"	28	10.	11.25	13.75	9.75	607	3035	6	2.	9.75	384	223	36.7	66.90	15.61	46.	661	21.8	33.05	99.95	.143
"	"	29	10.	11.5	14.5	10.5	672	3360	6	3.	10.75	454	218	32.4	65.40	15.26	54.5	692	20.6	34.60	100.00	.138
"	"	30	10.	12.	15.	11.	728	3640	8	2.	11.75	478	250	34.4	75.00	17.50	57.4	903	24.8	45.15	120.15	.1604
150	**25**	25	10.	10.	13.5	9.25	517	2585	6	2.	9.75	340	177	34.2	53.10	12.39	49.3	445	17.2	22.25	75.30	.1205
"	"	26	10.	10.5	14.	9.75	564	2820	6	2.	9.75	359	205	36.4	61.50	14.35	52.	468	16.6	23.40	84.90	.1309
"	"	27	10.	10.75	14.75	10.25	618	3090	6	2.5	10.25	404	214	34.6	64.20	14.98	58.5	513	16.6	25.65	96.00	.1423
"	"	28	10.	11.25	15.5	10.75	672	3360	6	3.	10.75	449	223	33.2	66.90	15.61	65.	581	17.3	29.05	95.95	.137
"	"	29	10.	11.5	16.	11.25	725	3625	8	2.	11.75	471	254	35.	76.20	17.78	68.4	740	20.4	37.00	113.20	.1564
"	"	30	10.	12.	16.5	11.75	782	3910	8	2.	11.75	493	289	37.	86.70	20.23	71.5	776	19.9	38.80	125.50	.1674
"	"																					
200	**25**	25	10.	10.	15.	10.	560	2800	6	2.5	10.25	376	184	32.9	55.20	12.88	63.9	378	13.5	18.90	74.10	.187
"	"	26	10.	10.5	15.5	10.5	611	3055	6	3.	10.75	416	195	31.9	58.50	13.65	70.6	473	13.5	23.65	82.15	.1266
"	"	27	10.	10.75	16.25	11.	666	3330	8	2.	11.75	442	224	33.6	67.20	15.68	75.	576	17.3	28.80	96.00	.1423
"	"	28	10.	11.25	17.	11.5	723	3615	8	2.	11.75	465	258	35.7	77.40	18.06	79.	603	16.7	30.15	107.55	.1542
"	"	29	10.	11.5	17.5	12.	777	3885	8	2.5	12.25	508	269	34.6	80.70	18.83	86.4	644	16.6	32.20	112.90	.1554
"	"	30	10.	12.	18.25	12.5	840	4200	8	3.	12.75	562	278	33.1	83.40	19.46	95.5	714	17.	35.70	119.10	.159
"	"																					
250	**25**	25	10.	10.	16.	10.5	592	2960	6	3.	10.75	405	187	31.6	56.10	13.09	79.	320	10.8	16.00	72.10	.1156
"	"	26	10.	10.5	16.5	11.	638	3190	8	2.	11.75	427	211	33.1	63.30	14.77	83.2	475	14.9	23.75	87.05	.1341
"	"	27	10.	10.75	17.5	11.5	701	3505	8	2.	11.75	453	248	35.3	74.40	17.36	88.3	507	14.5	25.35	99.75	.148
"	"	28	10.	11.25	18.25	12.	758	3790	8	2.5	12.25	498	260	34.3	78.00	18.2	97.	557	14.7	27.85	105.85	.1568
"	"	29	10.	11.5	18.75	12.5	816	4080	8	3.	12.75	547	269	32.9	80.70	18.83	106.5	592	14.5	29.60	110.30	.158
"	"	30	10.	12.	19.5	13.25	891	4455	10	2.	13.75	586	305	34.2	91.50	21.35	114.2	659	14.8	32.95	124.45	.166
"	"																					
300	**25**	25	10.	10.	17.	11.25	634	3170	8	2.	11.75	415	219	39.6	65.70	15.33	91.3	396	12.5	19.80	85.50	.1369
"	"	26	10.	10.5	17.75	11.75	689	3445	8	2.	11.75	438	251	36.5	75.30	17.57	96.5	414	12.	20.70	96.00	.1478
"	"	27	10.	10.75	18.5	12.25	746	3730	8	2.5	12.25	483	263	35.2	78.90	18.41	106.1	455	12.2	22.75	101.65	.1505
"	"	28	10.	11.25	19.25	12.75	805	4025	8	3.	12.75	534	271	33.6	81.30	18.97	117.3	520	12.9	26.00	107.30	.1536
"	"	29	10.	11.5	20.	13.25	865	4325	10	2.	13.75	570	295	34.1	88.50	20.65	125.3	636	14.7	31.80	120.30	.1663
"	"	30	10.	12.	21.	14.	946	4730	10	2.5	14.25	628	318	33.6	95.40	22.26	138.1	610	12.9	30.50	125.90	.1678
"	"																					
400	**25**	25	10.	10.	19.	12.5	705	3525	8	3.	12.75	474	231	32.8	69.30	16.17	128.	335	9.5	16.75	86.00	.1377
"	"	26	10.	10.5	19.75	13.	762	3810	10	2.	13.75	510	252	33.1	75.60	17.64	137.6	476	12.5	23.80	99.40	.153
"	"	27	10.	10.75	20.25	13.5	823	4115	10	2.	13.75	534	289	35.1	86.70	20.23	144.1	474	11.5	23.70	110.40	.1638
"	"	28	10.	11.25	21.5	14.25	900	4500	10	2.5	14.25	590	310	34.2	93.00	21.7	159.3	433	10.7	21.65	114.65	.1637
"	"	29	10.	11.5	22.25	14.75	963	4815	10	3.	14.75	643	320	33.2	96.00	22.4	173.6	525	10.9	26.25	122.25	.169
"	"	30	10.	12.	23.25	15.5	1047	5235	12	2.	15.75	687	360	34.4	108.00	25.2	185.8	717	13.7	35.85	143.85	.1915
"	"																					
500	**25**	25	10.	10.	20.5	13.5	783	3915	10	2.	13.75	497	286	36.5	85.80	20.02	159.	361	9.2	18.05	103.85	.166
"	"	26	10.	10.5	21.25	14.25	834	4170	10	2.5	14.25	546	288	34.6	86.40	20.16	174.8	480	11.5	24.00	110.40	.17
"	"	27	10.	10.75	22.5	15.	912	4560	12	2.	15.75	613	299	32.8	89.70	20.93	196.2	535	11.5	26.25	115.95	.179
"	"	28	10.	11.25	23.5	15.75	992	4960	12	2.	15.75	644	348	35.1	104.40	24.36	206.	506	10.2	25.30	129.70	.1852
"	"	29	10.	11.5	24.5	16.25	1062	5310	12	2.5	16.25	701	361	33.8	108.30	25.27	224.1	580	10.9	29.00	137.30	.1898
"	"	30	10.	12.	25.25	17.	1146	5730	12	3.5	17.25	786	360	31.4	108.00	25.2	252.	636	11.1	31.80	139.80	.1863

26 Foot Table

FLAT SLAB									RELIEVED SLAB												
			DROP PANEL						CONCRETE						WEIGHT		STEEL			TOTAL VALUE	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Steel Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**26**	26	10.5	10.5	12.75	9.	542	2710	6	2.	9.75	364	178	32.8	53.40	12.46	43.6	660	24.4	33.00	86.40	.1278
"	"	27	10.5	10.75	13.25	9.25	578	2890	6	2.	9.75	381	197	34.1	59.10	13.79	45.6	639	22.1	31.95	91.05	.1299
"	"	28	10.5	11.25	13.75	9.75	630	3150	6	2.	9.75	399	231	36.6	69.30	16.17	47.9	686	21.8	34.30	103.60	.1422
"	"	29	10.5	11.5	14.5	10.5	699	3495	6	3.	10.75	473	226	32.4	67.80	15.82	56.7	734	21.	36.70	104.50	.1387
"	"	30	10.5	12.	15.	11.	760	3800	8	2.	11.75	499	261	34.4	78.30	18.27	59.8	960	25.3	48.00	126.30	.162
150	**26**	26	10.5	10.5	14.	9.75	589	2945	6	2.	9.75	375	214	36.4	64.20	14.98	54.4	477	16.2	23.85	88.05	.1302
"	"	27	10.5	10.75	14.75	10.25	641	3205	6	2.5	10.25	420	221	34.5	66.30	15.47	60.9	523	16.3	26.15	92.45	.1317
"	"	28	10.5	11.25	15.5	10.75	697	3485	6	3.	10.75	467	230	33.	69.00	16.1	67.6	558	16.	27.90	96.90	.133
"	"	29	10.5	11.5	16.	11.25	753	3765	8	2.	11.75	489	264	35.1	79.20	18.48	70.8	655	17.4	32.75	111.95	.1484
"	"	30	10.5	12.	16.5	11.75	816	4080	8	2.	11.75	514	302	36.9	90.60	21.14	74.5	812	19.9	40.60	131.20	.1682
200	**26**	26	10.5	10.5	15.5	10.5	639	3195	6	3.	10.75	436	203	31.8	60.90	14.21	74.2	415	13.	20.75	81.65	.1208
"	"	27	10.5	10.75	16.25	11.	693	3465	8	2.	11.75	459	234	33.8	70.20	16.38	78.	592	17.1	29.60	99.80	.1422
"	"	28	10.5	11.25	17.	11.5	749	3745	8	2.	11.75	483	266	35.6	79.80	18.62	82.1	614	16.4	30.70	110.50	.152
"	"	29	10.5	11.5	17.5	12.	808	4040	8	2.5	12.25	528	280	34.7	84.00	19.6	89.8	674	16.7	33.70	117.70	.156
"	"	30	10.5	12.	18.25	12.5	874	4370	8	3.	12.75	588	286	32.8	85.80	20.02	100.	730	16.7	36.50	122.30	.157
250	**26**	26	10.5	10.5	16.5	11.	671	3355	8	2.	11.75	446	225	33.6	67.50	15.75	87.	486	14.5	24.30	91.80	.1358
"	"	27	10.5	10.75	17.5	11.5	729	3645	8	2.	11.75	471	258	35.4	77.40	18.06	91.8	509	14.	25.45	102.85	.1465
"	"	28	10.5	11.25	18.25	12.	788	3940	8	2.5	12.25	519	269	34.2	80.70	18.83	101.	555	14.1	37.75	108.45	.149
"	"	29	10.5	11.5	18.75	12.5	847	4235	8	3.	12.75	570	277	32.7	83.10	19.39	111.	605	14.3	30.25	113.35	.1503
"	"	30	10.5	12.	19.5	13.25	929	4645	10	2.	13.75	611	318	34.3	95.40	22.26	119.1	765	16.5	38.25	133.65	.1713
300	**26**	26	10.5	10.5	17.75	11.75	719	3595	8	2.	11.75	458	261	36.4	78.30	18.27	100.9	405	11.3	20.25	98.55	.1459
"	"	27	10.5	10.75	18.5	12.25	774	3870	8	2.5	12.25	502	272	35.2	81.60	19.04	110.4	465	12.	23.25	104.85	.1492
"	"	28	10.5	11.25	19.25	12.75	834	4170	8	3.	12.75	555	279	33.5	83.70	19.53	122.	492	11.8	24.60	108.30	.1488
"	"	29	10.5	11.5	20.	13.25	900	4500	10	2.	13.75	594	306	34.	91.80	21.42	130.7	661	14.7	33.05	124.85	.1653
"	"	30	10.5	12.	21.	14.	985	4925	10	2.5	14.25	655	330	33.5	99.00	23.1	144.	675	13.7	33.75	132.75	.1701
400	**26**	26	10.5	10.5	19.75	13.	796	3980	10	2.	13.75	533	263	33.	78.90	18.41	144.	478	12.	28.90	107.80	.1595
"	"	27	10.5	10.75	20.25	13.5	838	4190	10	2.	13.75	556	282	33.6	84.60	19.74	150.	474	11.3	28.70	113.30	.1615
"	"	28	10.5	11.25	21.5	14.25	924	4620	10	2.5	14.25	614	310	33.6	93.00	21.7	165.7	492	10.7	24.60	117.60	.1615
"	"	29	10.5	11.5	22.25	14.75	1001	5005	10	3.	14.75	670	331	33.1	99.30	23.17	180.9	545	10.9	27.25	126.55	.168
"	"	30	10.5	12.	23.25	15.5	1091	5450	12	2.	15.75	719	372	34.	111.60	26.04	194.	692	12.7	34.60	146.20	.1878
500	**26**	26	10.5	10.5	21.25	14.25	870	4350	10	2.5	14.25	571	299	34.4	89.70	20.93	182.9	370	8.5	18.50	108.20	.1603
"	"	27	10.5	10.75	22.5	15.	947	4735	12	2.	15.75	637	310	32.7	93.00	21.7	204.	535	11.3	26.75	119.75	.1705
"	"	28	10.5	11.25	23.5	15.75	1029	5145	12	2.	15.75	671	358	34.8	107.40	25.06	214.7	511	10.	25.55	132.95	.1826
"	"	29	10.5	11.5	24.5	16.25	1105	5525	12	2.5	16.25	729	376	34.	112.80	26.32	233.1	566	10.3	28.30	141.10	.1874
"	"	30	10.5	12.	25.25	17.	1205	6025	12	3.5	17.25	821	384	31.8	115.20	26.88	262.5	632	10.5	31.60	146.80	.188

27 Foot Table

FLAT SLAB									RELIEVED SLAB														
			Drop Panel						Concrete								Weight		Steel			Total Value	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Steel Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**27**	27	10.75	10.75	13.25	9.25	598	2990	6	2.	9.75	394	204	34.2	61.20	14.28	47.3	650	21.7	32.50	93.70	.1286
"	"	28	10.75	11.25	13.75	9.75	655	3275	6	2.	9.75	416	234	36.5	71.70	16.73	50.	704	21.5	35.20	106.90	.1411
"	"	29	10.75	11.5	14.5	10.5	727	3635	6	3.	10.75	492	235	32.3	70.50	16.45	59.1	766	20.9	38.30	108.80	.139
"	"	30	10.75	12.	15.	11.	783	3915	8	2.	11.75	515	268	34.2	80.40	18.76	61.8	982	25.1	49.10	129.50	.16
150	**27**	27	10.75	10.75	14.75	10.25	665	3325	6	2.5	10.25	434	231	34.8	69.30	16.17	62.8	549	16.5	27.45	96.75	.1328
"	"	28	10.75	11.25	15.5	10.75	726	3630	6	3.	10.75	485	241	33.2	72.30	16.87	70.3	587	16.2	29.35	101.65	.1343
"	"	29	10.75	11.5	16.	11.25	783	3915	8	2.	11.75	508	275	35.1	82.50	19.25	73.6	782	20.	39.10	121.60	.1552
"	"	30	10.75	12.	16.5	11.75	843	4215	8	2.	11.75	531	312	37.	93.60	21.84	77.	830	19.7	41.50	135.10	.167
200	**27**	27	10.75	10.75	16.25	11.	717	3585	8	2.	11.75	475	242	33.8	73.60	16.94	80.7	581	16.2	29.05	101.65	.1394
"	"	28	10.75	11.25	17.	11.5	780	3900	8	2.	11.75	502	278	35.6	83.40	19.46	85.4	655	16.8	32.75	116.15	.1539
"	"	29	10.75	11.5	17.5	12.	841	4205	8	2.5	12.25	549	293	34.7	87.60	20.44	93.3	695	16.5	34.75	122.35	.1561
"	"	30	10.75	12.	18.25	12.5	901	4505	8	3.	12.75	606	295	32.7	88.50	20.65	103.	748	16.6	37.40	125.90	.1552
250	**27**	27	10.75	10.75	17.5	11.5	744	3720	8	2.	11.75	487	257	34.6	77.10	17.99	95.	520	14.	26.00	103.10	.1409
"	"	28	10.75	11.25	18.25	12.	818	4090	8	2.5	12.25	538	280	34.2	84.00	19.67	105.	584	13.3	29.20	113.20	.15
"	"	29	10.75	11.5	18.75	12.5	880	4400	8	3.	12.75	592	288	32.7	86.40	20.16	115.3	625	14.2	31.25	117.65	.15
"	"	30	10.75	12.	19.5	13.25	960	4800	10	2.	13.75	631	324	34.3	98.70	23.03	123.	787	16.4	39.35	138.05	.1705
300	**27**	27	10.75	10.75	18.5	12.25	804	4020	8	2.5	12.25	520	284	35.3	85.20	19.88	114.2	482	12.	24.10	109.30	.15
"	"	28	10.75	11.25	19.25	12.75	869	4345	8	3.	12.75	578	291	33.5	87.30	20.37	127.1	503	11.6	25.15	112.45	.1489
"	"	29	10.75	11.5	20.	13.25	934	4670	10	2.	13.75	616	318	34.1	95.40	23.26	135.7	672	14.4	33.60	129.00	.1648
"	"	30	10.75	12.	21.	14.	1018	5090	10	2.5	14.25	676	342	33.6	102.60	23.94	148.9	705	13.9	34.25	137.85	.17
400	**27**	27	10.75	10.75	20.25	13.5	866	4330	10	2.	13.75	577	289	33.4	86.70	20.23	156.	541	12.5	27.05	113.75	.156
"	"	28	10.75	11.25	21.5	14.25	971	4855	10	2.5	14.25	638	333	34.3	94.90	23.31	172.3	515	10.6	25.75	125.65	.166
"	"	29	10.75	11.5	22.25	14.75	1042	5210	10	3.	14.75	695	347	33.2	104.10	24.29	181.6	568	10.9	28.40	132.50	.1692
"	"	30	10.75	12.	23.25	15.5	1128	5640	12	2.	15.75	741	387	34.3	116.10	27.09	200.	720	12.8	36.00	152.10	.188
500	**27**	27	10.75	10.75	22.5	15.	982	4910	12	2.	15.75	654	323	32.9	96.40	22.69	210.8	541	11.	27.05	123.95	.17
"	"	28	10.75	11.25	23.5	15.75	1062	5310	12	2.	15.75	687	375	35.2	112.50	26.25	220.	525	9.9	26.25	138.75	.1833
"	"	29	10.75	11.5	24.5	16.25	1147	5735	12	2.5	16.25	756	391	34.1	117.30	27.37	242.	584	10.2	29.20	146.50	.187
"	"	30	10.75	12.	25.25	17.	1234	6170	12	3.5	17.25	848	386	31.3	115.80	27.02	271.5	665	10.8	33.25	149.05	.184

28 Foot Table

FLAT SLAB									RELIEVED SLAB												
			DROP PANEL						CONCRETE							WEIGHT		STEEL			TOTAL VALUE	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Steel Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**28**	28	11.25	11.25	13.75	9.75	679	3395	6	2.	9.75	430	249	36.7	74.70	17.43	51.5	730	21.5	36.50	112.20	.142
"	"	29	11.25	11.5	14.5	10.5	752	3760	6	3.	10.75	509	243	32.3	72.90	17.01	61.	760	20.8	38.00	110.90	.1366
"	"	30	11.25	12.	15.	11.	817	4085	8	2.	11.75	535	282	34.5	84.60	19.74	64.1	1005	24.6	50.25	134.85	.1605
150	**28**	28	11.25	11.25	15.5	10.75	752	3760	6	3.	10.75	504	248	33.	74.40	17.36	73.	602	16.	30.10	104.05	.1335
"	"	29	11.25	11.5	16.	11.25	810	4050	8	2.	11.75	527	283	34.9	84.90	19.81	76.4	802	19.8	40.10	125.00	.154
"	"	30	11.25	12.	16.5	11.75	878	4390	8	2.	11.75	552	326	37.1	97.80	22.82	80.	870	19.8	43.50	141.30	.1684
200	**28**	28	11.25	11.25	17.	11.5	809	4045	8	2.	11.75	520	289	35.8	86.70	20.23	88.5	666	16.5	33.30	120.00	.1531
"	"	29	11.25	11.5	17.5	12.	869	4345	8	2.5	12.25	568	301	34.7	90.30	21.07	96.6	733	16.9	36.65	126.95	.1562
"	"	30	11.25	12.	18.25	12.5	940	4700	8	3.	12.75	630	310	33.	93.00	21.7	107.	790	16.8	39.50	129.50	.1542
250	**28**	28	11.25	11.25	18.25	12.	850	4250	8	2.5	12.25	558	292	34.3	87.60	20.44	108.8	606	14.3	30.30	117.90	.1503
"	"	29	11.25	11.5	18.75	12.5	910	4550	8	3.	12.75	613	297	32.7	89.10	20.79	119.7	645	14.2	32.25	121.35	.1496
"	"	30	11.25	12.	19.5	13.25	998	4990	10	2.	13.75	657	341	34.5	102.30	23.87	128.	778	15.6	38.90	141.20	.1682
300	**28**	28	11.25	11.25	19.25	12.75	900	4500	8	3.	12.75	598	302	33.6	90.60	21.14	131.7	517	11.5	25.85	116.45	.1486
"	"	29	11.25	11.5	20.	13.25	967	4835	10	2.	13.75	638	329	34.	98.70	23.03	140.2	700	14.5	35.00	133.70	.1648
"	"	30	11.25	12.	21.	14.	1059	5295	10	2.5	14.25	705	354	33.9	106.20	24.78	155.	667	12.6	33.35	139.55	.1661
400	**28**	28	11.25	11.25	21.5	14.25	1007	5035	10	2.5	14.25	661	346	34.4	103.80	24.22	178.4	513	10.2	25.65	129.45	.1652
"	"	29	11.25	11.5	22.25	14.75	1076	5380	10	3.	14.75	720	356	33.1	106.80	24.92	194.3	586	10.9	29.30	136.10	.168
"	"	30	11.25	12.	23.25	15.5	1175	5875	12	2.	15.75	771	404	34.4	121.20	28.28	208.1	751	12.8	37.55	158.75	.189
500	**28**	28	11.25	11.25	23.5	15.75	1110	5550	12	2.	15.75	722	388	34.9	116.40	27.16	231.	538	9.7	26.90	143.30	.183
"	"	29	11.25	11.5	24.5	16.25	1187	5935	12	2.5	16.25	784	403	34.	120.90	28.21	251.	598	10.1	29.90	150.80	.186
"	"	30	11.25	12.	25.25	17.	1284	6420	12	3.5	17.25	873	411	32.	123.30	28.97	279.	674	10.5	33.70	157.00	.187

29 Foot Table

FLAT SLAB									RELIEVED SLAB													
			DROP PANEL						CONCRETE							WEIGHT		STEEL			TOTAL VALUE	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Steel Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**29**	29	11.5	11.5	14.5	10.5	779	3895	6	3.	10.75	521	258	33.2	77.40	18.06	62.5	817	21.	40.85	118.25	.1407
"	"	30	11.5	12.	15.	11.	842	4210	8	2.	11.75	554	288	34.2	86.40	20.16	66.3	1048	24.9	52.80	139.20	.1601
150	**29**	29	11.5	11.5	16.	11.25	834	4170	8	2.	11.75	544	290	34.9	87.00	20.3	78.8	833	20.	41.65	128.65	.153
"	"	30	11.5	12.	16.5	11.75	904	4520	8	2.	11.75	571	333	36.9	99.90	23.31	82.8	885	19.6	44.25	144.15	.166
200	**29**	29	11.5	11.5	17.5	12.	900	4500	8	2.5	12.25	587	313	34.8	93.90	21.91	99.7	675	15.	33.75	127.65	.1517
"	"	30	11.5	12.	18.25	12.5	972	4860	8	3.	12.75	651	321	33.	96.30	22.47	110.8	754	15.5	38.70	135.00	.1552
250	**29**	29	11.5	11.5	18.75	12.5	942	4710	8	3.	12.75	632	310	32.9	93.00	21.7	123.2	625	13.2	31.25	124.25	.1479
"	"	30	11.5	12.	19.5	13.25	1031	5155	10	2.	13.75	678	353	34.2	105.90	24.71	132.1	835	16.2	41.75	147.65	.17
300	**29**	29	11.5	11.5	20.	13.25	1001	5005	10	2.	13.75	659	342	34.1	102.60	23.94	144.9	750	15.	37.50	140.10	.1668
"	"	30		12.	21.	14.	1095	5475	10	2.5	14.25	729	366	33.4	109.80	25.62	160.1	755	13.8	37.75	147.55	.1698
400	**29**	29	11.5	11.5	22.25	14.75	1114	5570	10	3.	14.75	743	371	33.3	111.30	25.97	200.1	584	10.5	29.20	140.50	.167
"	"	30		12.	23.25	15.5	1212	6060	12	2.	15.75	797	415	34.1	124.50	29.05	214.8	776	12.8	38.80	163.30	.188
500	**29**	29	11.5	11.5	24.5	16.25	1228	6140	12	2.5	16.25	810	418	34.1	125.40	29.26	259.1	614	10.	30.70	156.10	.1858
"	"	30		12.	25.25	17.	1327	6635	12	3.5	17.25	911	416	31.4	124.80	29.12	291.6	676	10.2	33.80	158.60	.1822

30 Foot Table

FLAT SLAB									RELIEVED SLAB												
			DROP PANEL						CONCRETE							WEIGHT		STEEL			TOTAL VALUE	
Live Load, Lbs.	Short Span, Ft.	Long Span, Ft.	Width, Ft.	Length, Ft.	Thickness Inches	Thickness of Slab Inches	Total Concrete in Bay Cu. Ft.	Lbs. Steel in Bay @ 5 lbs. per Cu. Ft.	Depth of Dome Inches	Thickness of Floor Inches	Total Depth Inches	Total Concrete in Bay—Cu. Ft.	Concrete Saved per Bay—Cu. Ft.	Percent of Concrete Saved	Value at 30c per Cu. Ft.	Relief per Column Tons	Total Load on Column, Tons	Steel Saved per Bay, Lbs.	Percent Steel Saved	Value at 5c per Lb.—Dollars	Total Saving per Bay—Dollars	Saving per Sq. Ft.—Dollars
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
100	**30**	30	12.	12.	15.	11.	871	4355	8	2.	11.75	573	298	34.2	89.40	20.86	68.7	1010	23.2	50.50	139.90	.1553
150	**30**	30	12.	12.	16.5	11.75	937	4685	8	2.	11.75	591	346	37.	103.80	24.22	85.6	913	19.5	45.65	149.45	.166
200	**30**	30	12.	12.	18.25	12.5	1005	5025	8	3.	12.75	674	331	32.9	99.30	23.17	114.2	779	15.5	38.95	138.25	.1537
250	**30**	30	12.	12.	19.5	13.25	1068	5340	10	2.	13.75	702	366	34.3	109.80	25.62	137.	826	15.5	41.30	151.10	.168
300	**30**	30	12.	12.	21.	14.	1130	5665	10	2.5	14.25	752	381	33.6	114.30	26.67	165.5	780	13.75	39.00	153.30	.1705
400	**30**	30	12.	12.	23.25	15.5	1254	6270	12	2.	15.75	825	429	34.2	128.70	30.03	222.8	752	12.	37.50	166.30	.185
500	**30**	30	12.	12.	25.25	17.	1373	6865	12	3.5	17.25	943	430	31.3	129.00	30.1	301.8	687	10.	34.35	163.35	.1816

PRODUCTS OF
THE BLAW-KNOX COMPANY

FABRICATED STEEL

Fabricated steel, one of the principal products of Blaw-Knox Company, includes mill buildings, manufacturing plants, bridges, crane runways, trusses and other construction of a highly fabricated nature.

A corps of highly trained engineers is maintained for consulting and designing services.

TRANSMISSION TOWERS

Four legged straight line or suspension towers, anchor and dead end towers, latticed and channel A-frames, river crossing towers, outdoor substations, switching stations, signal towers, steel poles, derrick towers.

We specialize in the design and fabrication of high tension transmission lines.

PLATE WORK

Riveted, pressed and welded steel plate products of every description, including: accumulators; agitators; water boshes; annealing boxes; containers; digesters; filters: flumes; gear guards; kettles; ladles; pans: penstocks; air receivers; stacks; standpipes; miscellaneous tanks; miscellaneous blast furnace work; etc.

BLAW BUCKETS

Clamshell buckets and automatic cableway plants for digging and rehandling earth; sand; gravel; coal; ore; limestone; tin scrap; slag; cinders; fertilizers; rock products; etc.

For installation on derricks; overhead and locomotive cranes; monorails; dredges; steam shovels; ditchers; cableways; ships, for handling cargo and coal; etc.

BLAWFORMS

Steel forms for every type of concrete construction: aqueducts; bridges; cisterns; columns; culverts; curbs and gutters; dams; factories; floors; foundations; houses; locks; manholes; piers; pipe; reservoirs; roads; sewers; shafts; sidewalks; subways; tanks; tunnels; viaducts; retaining walls; warehouses; etc.

FURNACE APPLIANCES

Knox patented water cooled doors, door frames, front and back wall coolers, ports, reversing valves, etc., for open hearth, glass, and copper regenerative furnaces; shields, boshes, and standings for sheet and tin mills.

THE EDDY PRESS CORPORATION
PITTSBURGH

THE
BLAW SYSTEM
FOR BUILDING CONSTRUCTION

. . .

BLAWFORMS

FOR REINFORCED CONCRETE FLOORS AND ROOFS

FLAT SLAB
RELIEVED SLAB
RIB SLAB
BEAM AND JOIST

. . .

PATENTED
February 20, 1917
September 10, 1918
September 10, 1918
September 10, 1918
December 31, 1918
December 31, 1918
February 4, 1919
February 4, 1919
Other Patents Pending

. . .

BLAW

ADJUSTABLE COLUMN MOLDS AND HEADS

PATENTED

BLAW-KNOX

BLAW-KNOX COMPANY

GENERAL OFFICES PITTSBURGH, PA.

DISTRICT SALES OFFICES

NEW YORK
165 Broadway

CHICAGO
Peoples Gas Bldg.

SAN FRANCISCO
Monadnock Building.

BOSTON
Little Building

DETROIT
Lincoln Building

CATALOGUE No. 18

COM-PARISON

C O M P A R I S O N

Old system

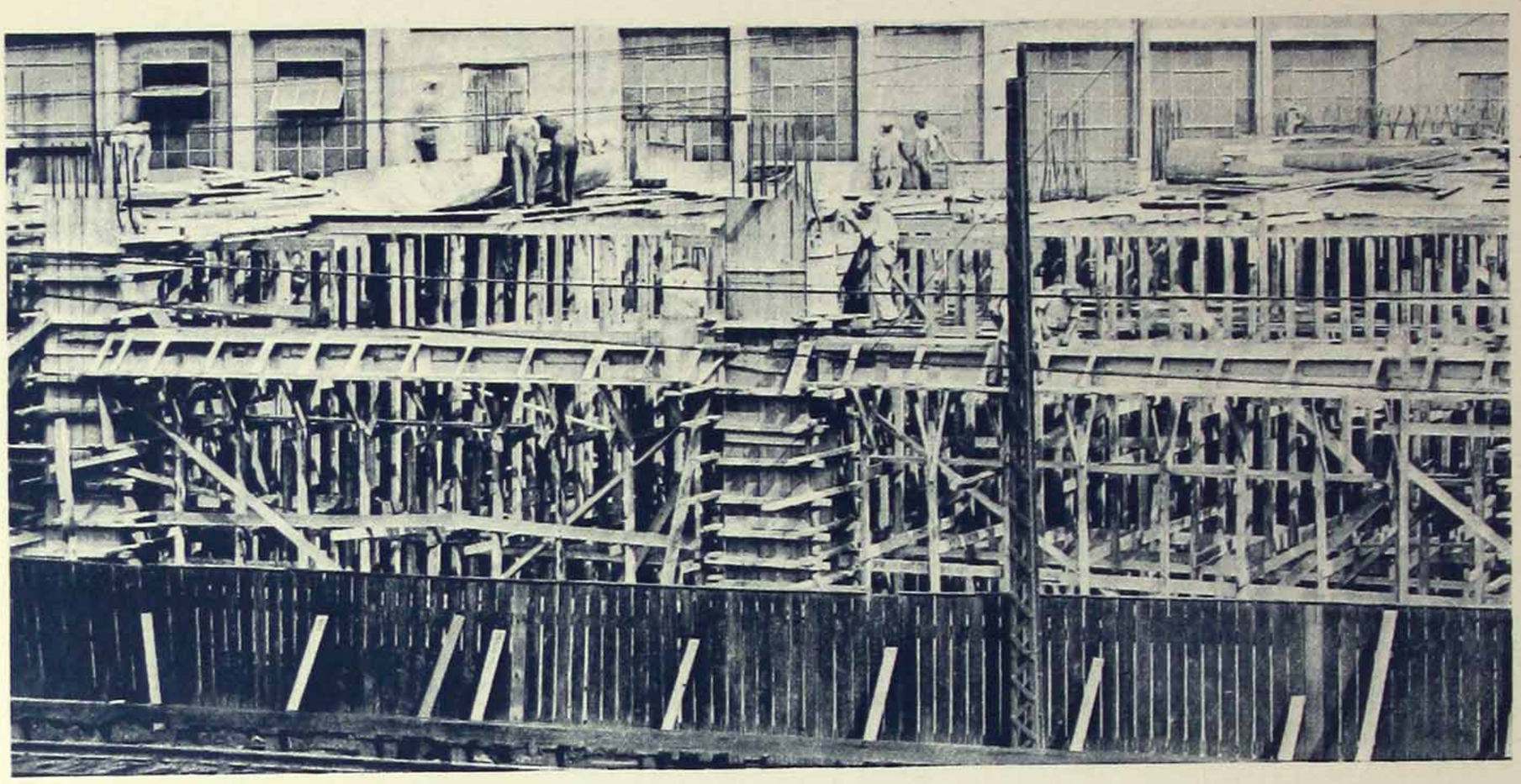


FIG. 1—ILLUSTRATING ORDINARY CONSTRUCTION. A VERITABLE FOREST OF POSTS AND BRACING

BLAW System

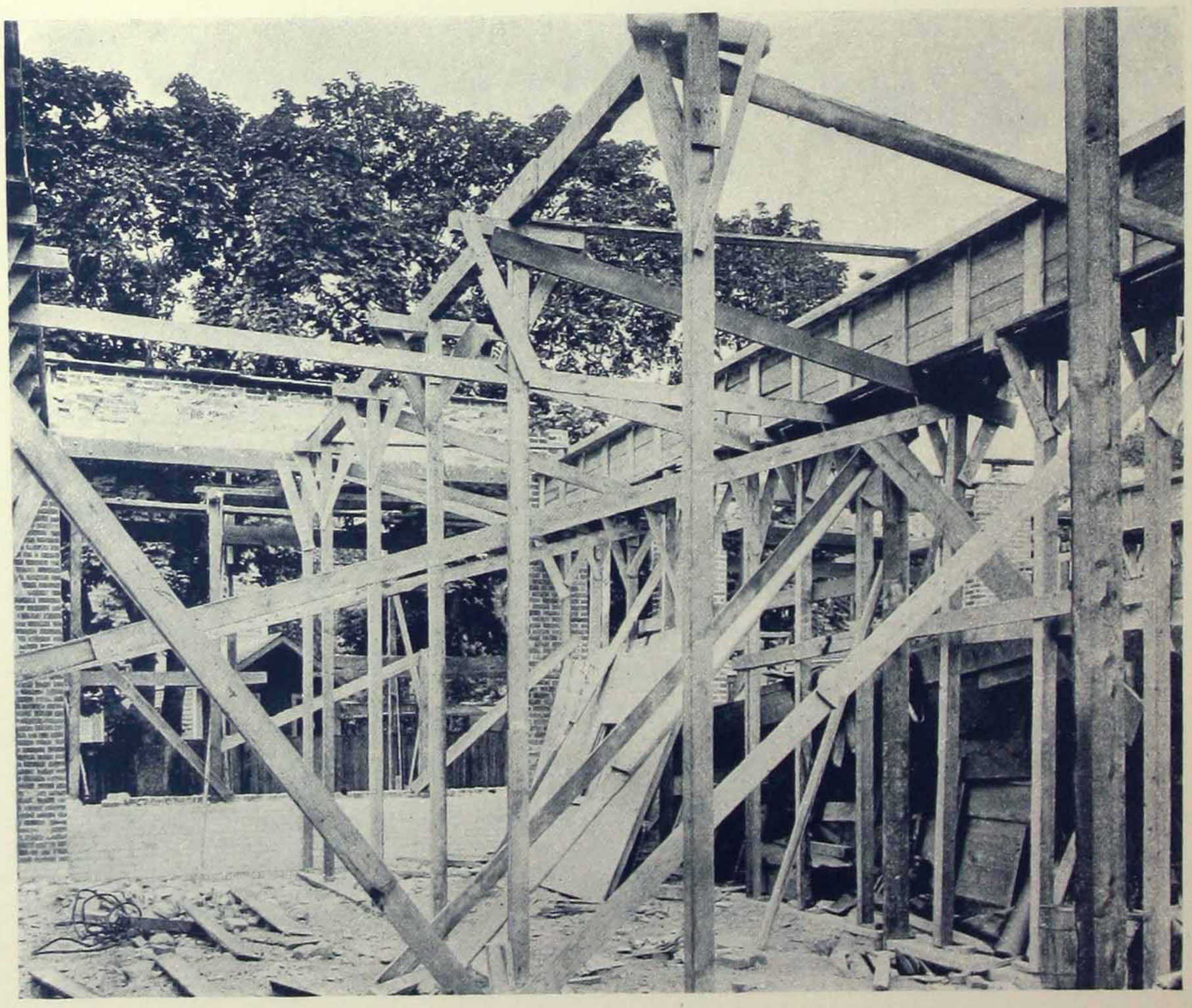


FIG. 2—THE BLAW SYSTEM

BLAW-KNOX

INTRODUCTION

INTRO-DUCTION

The BLAW System for Floor and Roof and Column Construction is not an attempt to save concrete.

Not an attempt to save concrete

That has been tried before, in many ways, and usually at a cost greater than the value saved.

The existence of the BLAW System is due to a keen recognition of the appalling waste in lumber and labor which is an inevitable consequence of present methods.

Reason for existence of BLAW System

The system was designed and perfected by the foremost engineers in the reinforced concrete construction profession—engineers whose names are indelibly associated with some of the most note-worthy engineering projects completed during the past decade and a half.

The purpose of this book is merely to illustrate and explain the equipment used and the methods employed in the BLAW System, and its simplicity and evident superiority over any other type of floor and roof and column construction.

Purpose of this book

To owners, architects, engineers and contractors we cordially extend the services of our entire engineering organization, who will be pleased to advise regarding our present standards and their application to individual structures.

Consulting service

BLAW-KNOX

SERVICE

THE SERVICE

We offer a complete service

Given the walls and foundations, the Blaw-Knox Company will furnish the forms—BLAWFORMS—for columns, and for floors and roofs of any type—

Will deliver and erect the forms, ready for placing reinforcing and concrete—

Will include all subsidiary wood forms for girders, plinths, etc., *and all supporting shoring*—

The forms will be shifted from time to time as the work progresses, always keeping well ahead of the concreting—

And when the job is completed all equipment will be removed from the premises.

Either under a direct or subcontract

This work will be done either under a direct or subcontract, at a lump sum figure for the job.

In other words certainty is substituted for guess work.

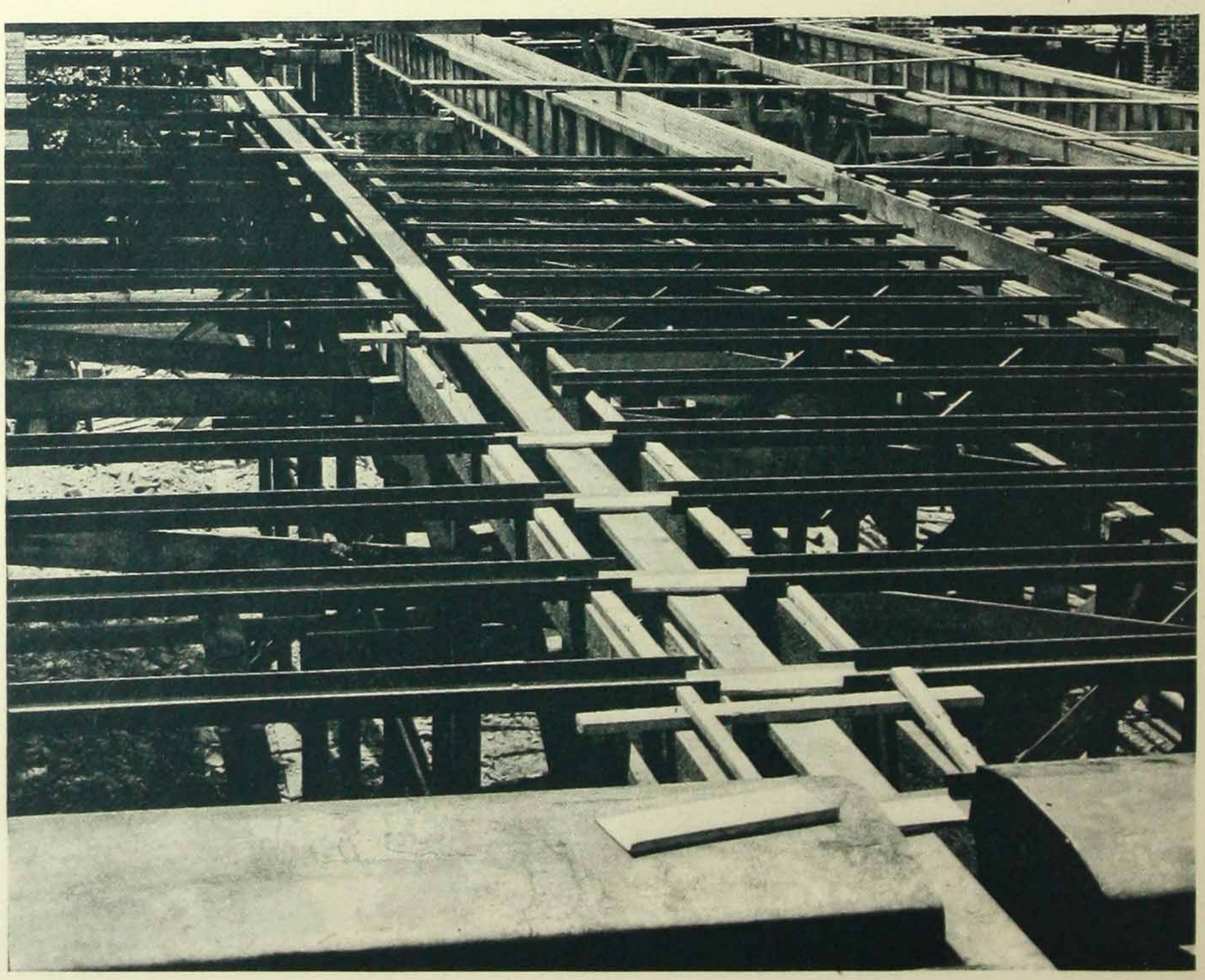


FIG. 3—EXTENSION GAP, SHOWING USE OF STRETCHERS

BLAW-KNOX

TYPES OF FLOORS AND ROOFS

TYPES

Four standard types

We have standardized a system of forms for four distinct types of floor and roof construction; namely, Beam and Joist, Flat Slab, Rib Slab and Relieved Slab.

Beam and Joist

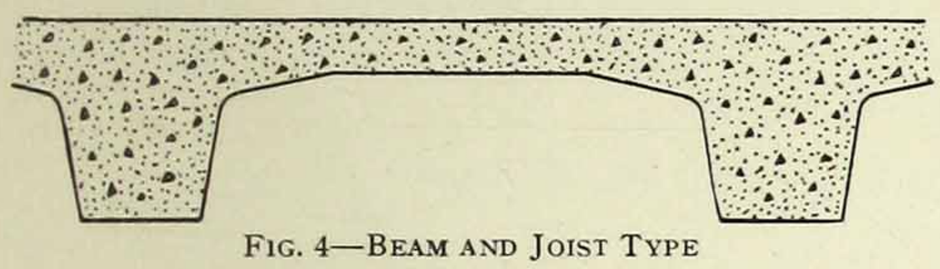


FIG. 4—BEAM AND JOIST TYPE

The Beam and Joist type is suitable for moderate loads and spans, and is rapidly replacing the beam and girder type of construction. If a flat ceiling is desired, wire lath is hung and plastered as explained on page 19. Standardized on 5″ joists and 25″ centers, with 6″, 8″, 10″, and 12″ rise under soffit.

Flat Slab

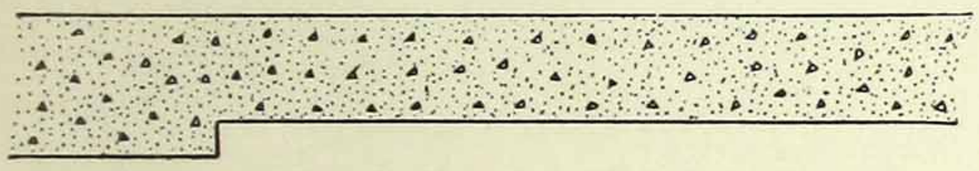


FIG. 5—FLAT SLAB TYPE

The Flat Slab type is suitable for heavy loads and moderate spans. The floor itself is the ordinary standard design without modification, and the function of the BLAW System is solely to reduce cost and increase rapidity of construction.

Rib Slab

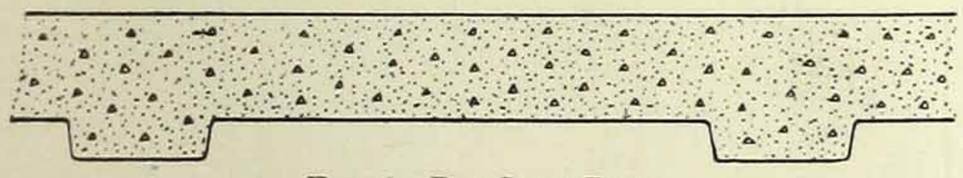


FIG. 6—RIB SLAB TYPE

The Rib Slab type is suitable for the same load and span as the Flat Slab type and having the same characteristics, but with a saving of from 4 to 15% in dead weight and cost of material.

Relieved Slab

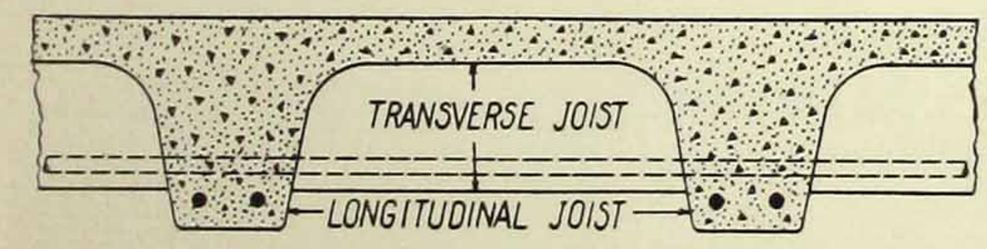


FIG. 7—RELIEVED SLAB TYPE

The Relieved Slab represents the summit of the art. On account of the great saving in dead weight—from 30 to 37%—it is, for a given depth, adapted to longer spans and heavier live loads than any other type. Standardized on 24″ centers and for a total thickness of from 6″ to 18″.

It is a true flat slab, lightened by the removal of useless concrete.

For a technical discussion of the theory of Rib Slab and Relieved Slab types see pages 24 and 27 respectively.

BLAW-KNOX

THE EQUIPMENT

Beam and Joist construction

The BLAW System undertakes to cover the entire field of floor and roof construction with a system of steel forms so designed that every type can be built with fundamentally the same equipment and with identically the same operations.

The variable units are merely those which give the desired shape to the underside of the floor, but the supporting system and routine of handling are common to all types.

We illustrate and describe the plant equipment for Beam and Joist construction first, merely because it embodies all the features of the BLAW System, some of which are not required in connection with the other types of construction.

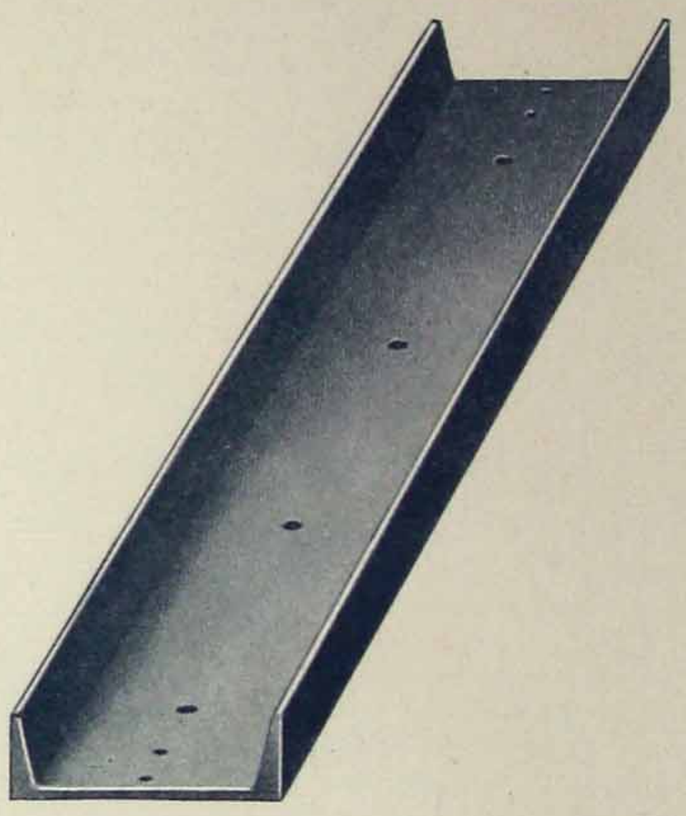


FIG. 8—CHANNEL

Channels

The primary function of the channels is to hold in position the forms in which the various types of floors or roofs are cast. Incidentally they form the bottom of joists or ribs, depending upon the type of construction in which they are used. Standard 6″ channels are used, in lengths of 6, 8, and 10 feet. These lengths, combined with the stretchers, will cover any fractional variation of span.

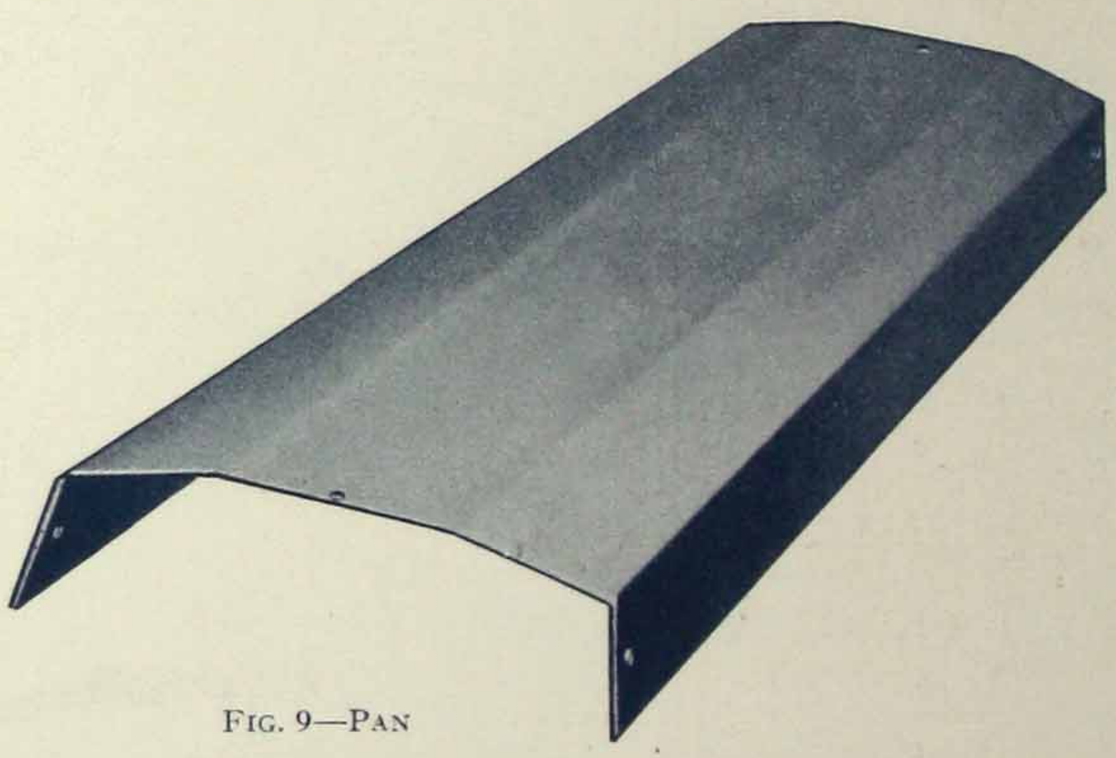


FIG. 9—PAN

Pans

In the BLAW System of Beam and Joist construction the concrete is cast in pans which, together with the channels, are the forms for the joists and intervening floor slabs. They are die pressed from 14 gauge steel plate. Standard depths are 6″, 8″, 10″ and 12″, in lengths of 6, 8 and 10 feet to match the channels. In connection with covers and stretchers these pans will meet any variation of span. Bolt holes are punched at each end for headers when used.

FIG. 10—HEADER

THE EQUIPMENT

Beam and Joist construction

Headers

The headers, which are die pressed from 14 gauge steel plate, are essentially a part of the pans, but are interchangeable and removable.

Contrast this header with wooden headers which half the time must be dug out of the concrete with a nut pick. Steel headers come away with the pans.

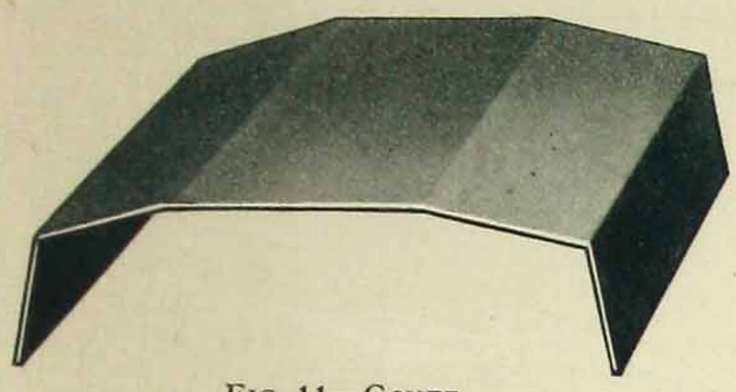


FIG. 11—COVER

Covers

The covers are just large enough to fit tight over the outside of the pans, and are used to fill the gaps between the ends of the pans. They are die pressed from 14 gauge steel plate, 30″ in length.

Stretchers

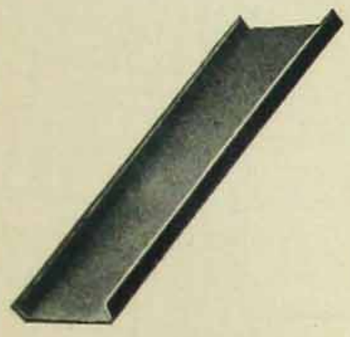


FIG. 12—STRETCHER

Stretchers are common to all types of construction, being used to carry the joists or ribs across the gaps between the ends of the channels. They are die pressed from 20 gauge steel plate, in 30″ lengths.

Covers and stretchers working together form the sliding members which adapt the forms to any variation of span.

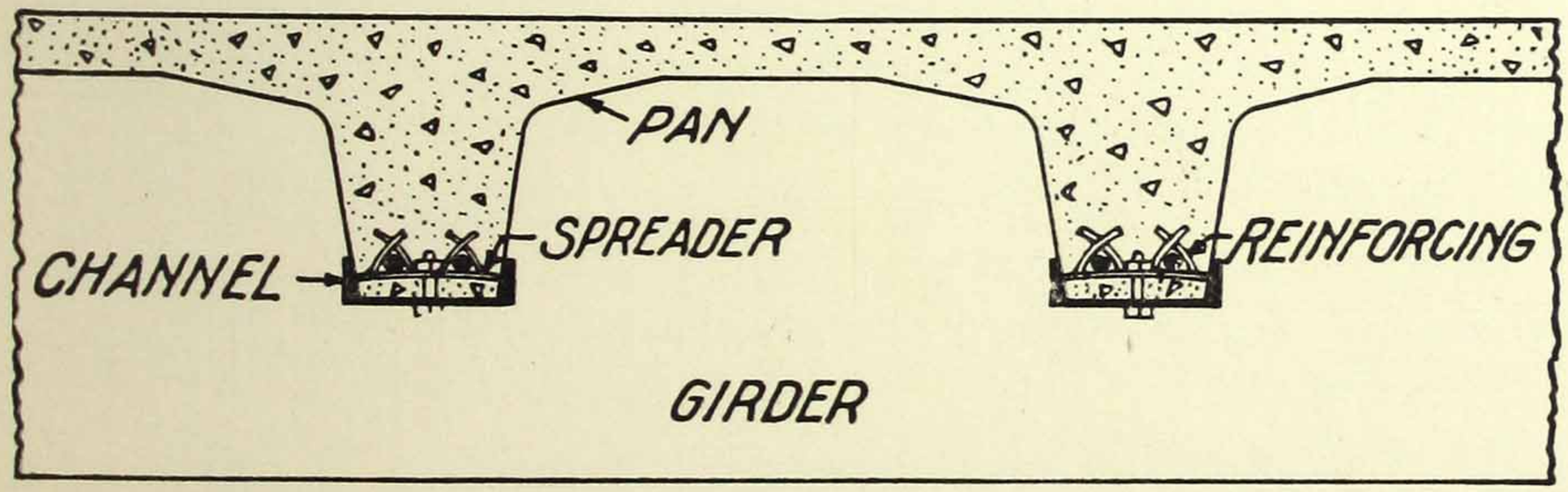


FIG. 13—BLAWFORMS FOR BEAM AND JOIST CONSTRUCTION

BLAW-KNOX

THE EQUIPMENT

Flat Slab construction

In Flat Slab Floor and Roof construction the same channels and supports are used as in the BLAW System for Beam and Joist construction. But the channels are now turned flat side up and supplied with steel buttons bolted firmly in place.

Panels

The projecting ends of these buttons support trussed steel panels, Fig. 15, of such depth that the plane of the panels coincide exactly with the plane of the channels, thus making a true Flat Slab type of construction, but built with steel instead of wooden forms.

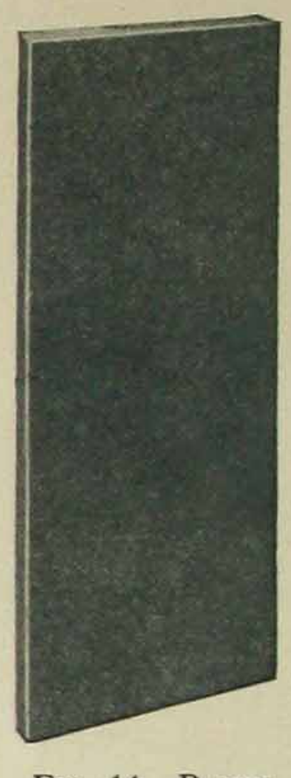


FIG. 14—PANEL

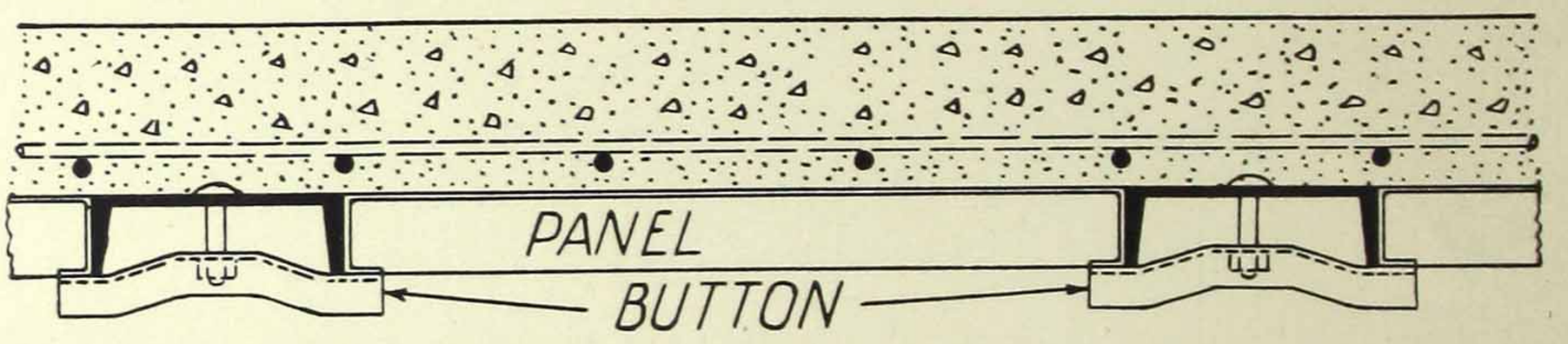


FIG. 15—BLAWFORMS FOR FLAT SLAB CONSTRUCTION

Rib Slab construction

The Rib Slab is, in fact, a flat slab with shallow ribs on 25″ centers, in one direction only. The same equipment is used as in The BLAW System for Flat Slab construction, the ribs being formed by reversing the channels, hollow side up.

This type of construction is entirely new and its value will be determined by experience. The advantage is a saving of from 2 to 5 cents per square foot over a flat slab of equal strength.

For the engineering involved see page 24.

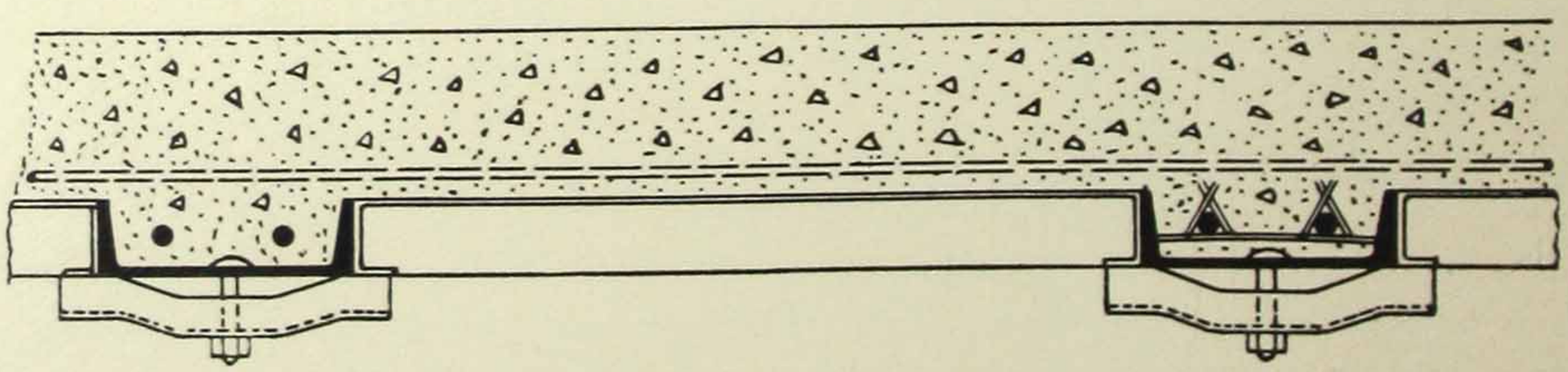


FIG. 16—BLAWFORMS FOR RIB SLAB CONSTRUCTION

THE EQUIPMENT

EQUIPMENT

Relieved Slab construction

In Relieved Slab construction the same system of channels and supports are used as in Beam and Joist construction, the pans being replaced by 14 gauge pressed steel domes, Fig. 19, so shaped that when assembled they automatically make the forms for the transverse joists, the main joists being formed by the channels themselves.

The saving is from 9 to 19 cents per square foot of floor (present values), plus 30 to 37 per cent of relieved load on columns.

For the engineering involved see page 27.

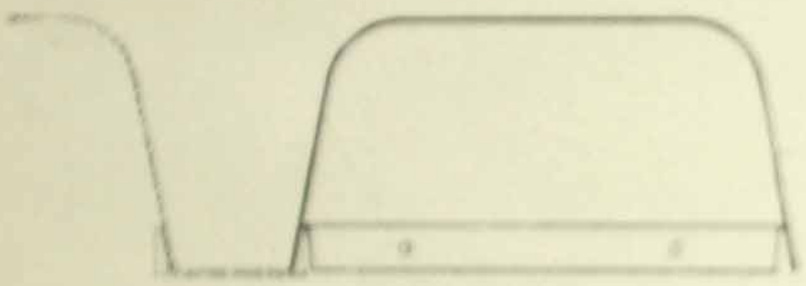


FIG. 17—SECTION OF DOME SHOWING FORM FOR LONGITUDINAL JOIST

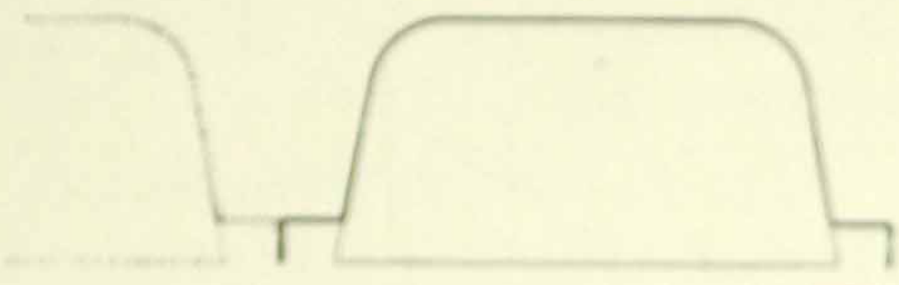


FIG. 18—SECTION OF DOME SHOWING FORM FOR TRANSVERSE JOIST

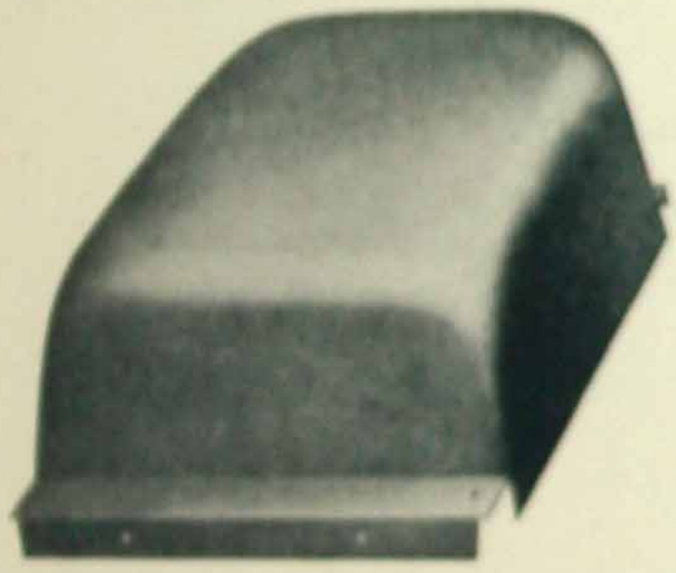


FIG. 19—THE DOME

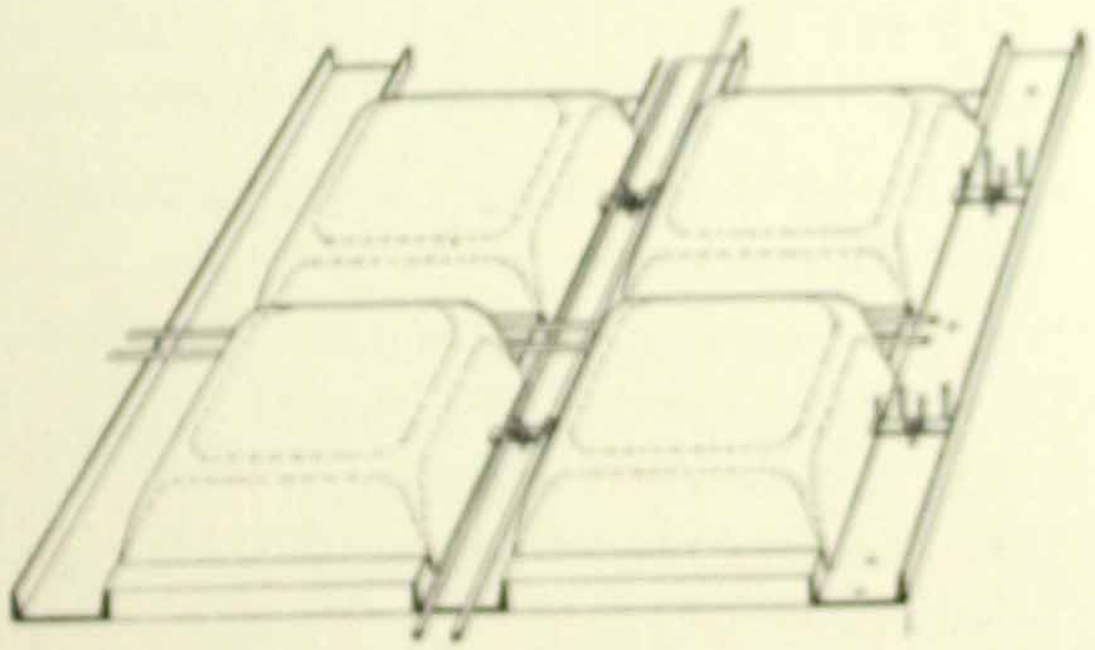


FIG. 20—ASSEMBLY FOR RELIEVED SLAB CONSTRUCTION

A fundamental principle

It has now been made clear that one of the fundamentals of the BLAW System is a skeleton framework of steel channels, with provision for adjustment to any span and for the avoidance of reshoring. This principle, with all the advantages that flow from it, remains unchanged throughout all the types of construction.

BEAM AND JOIST

Successive steps

The successive steps in the BLAW System for Beam and Joist Construction are clearly shown in Figs. 21 to 28.

The simplicity of the system is obvious.

First the posts are set, on 4′ to 8′ centers, as required, with double wedges under foot.

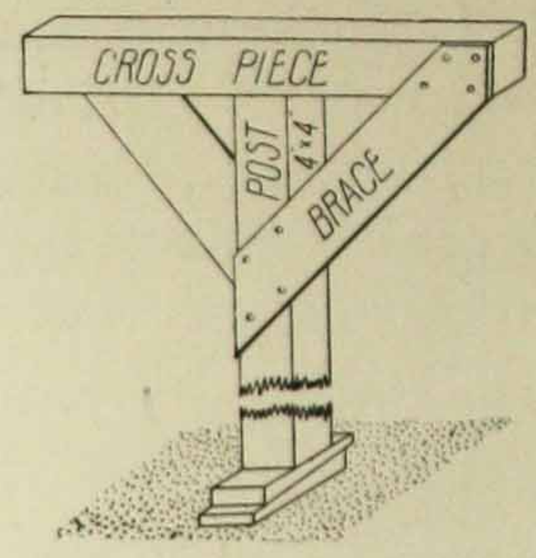


FIG. 21

Then the stringers are placed in position on double wedges bearing on the crosspieces of the posts, 4″ x 6″ (or 4″ x 8″) "king" stringers in the center with 2″ x 6″ (or 2″ x 8″) "queen" stringers on either side.

After the posts and stringers have been placed the channels are laid in position as shown in Fig. 23, being spaced by gauge rods 19″ long.

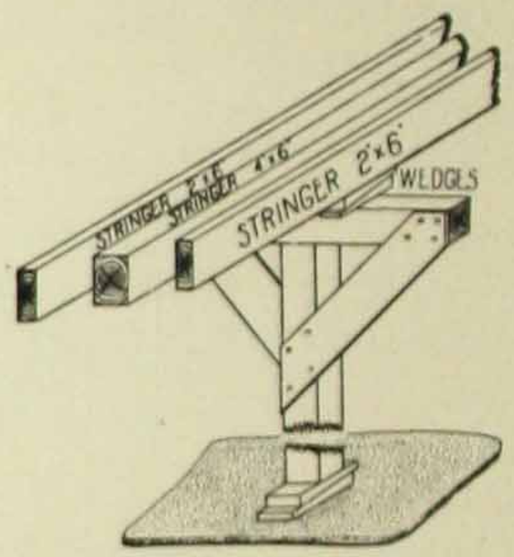


FIG. 22

A wire slate nail is driven into the queen stringers through the holes provided in each end of every channel, to hold the latter in position.

The pans are merely dropped into position over the channels.

No accuracy required

No accuracy is required in the end spacing of either channels or pans. The stretchers and covers take care of that.

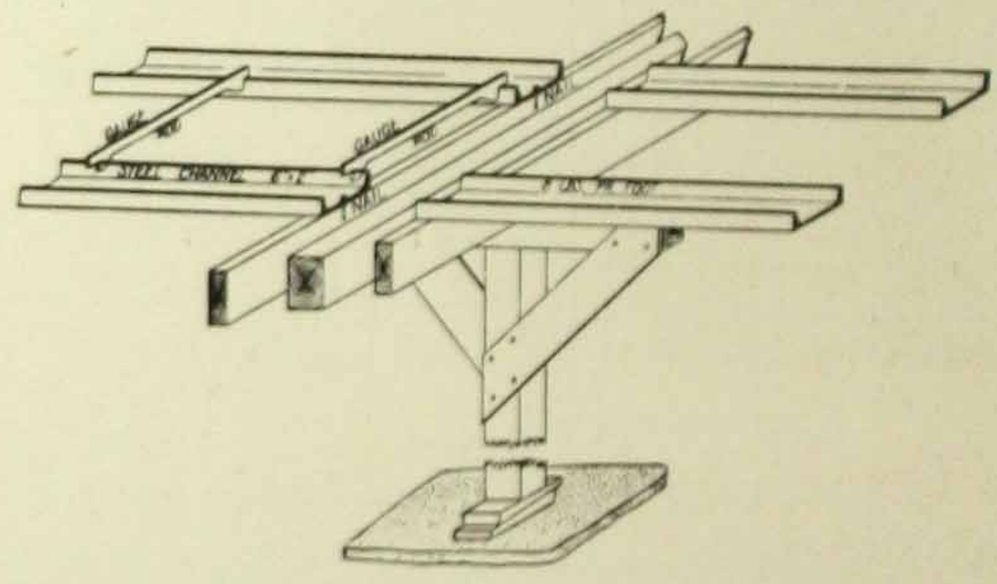


FIG. 23

Next the prong spreaders, which are loosely bolted to the channels before the latter are placed, are clamped into position.

A detailed description of the prong spreader, and its function, is given on page 18.

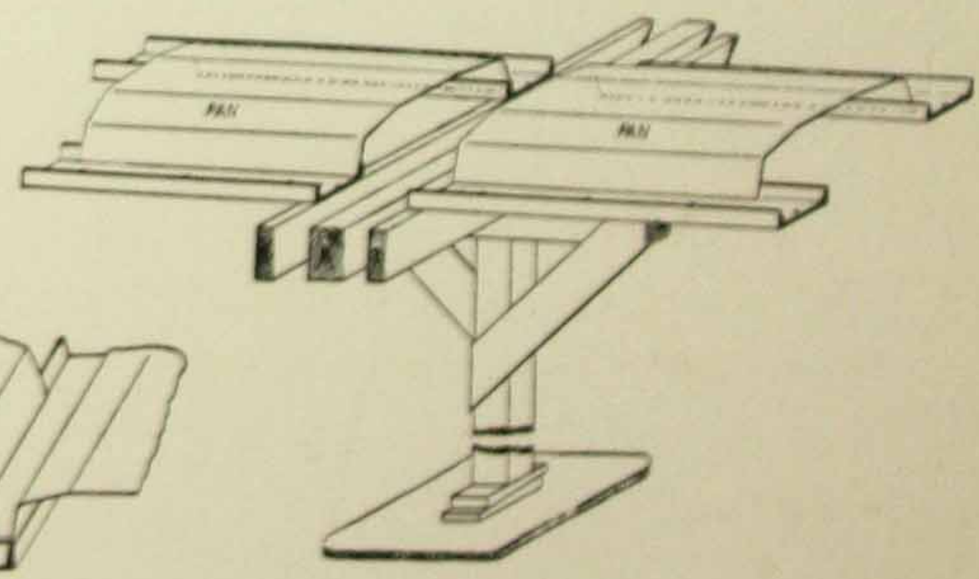


FIG. 24

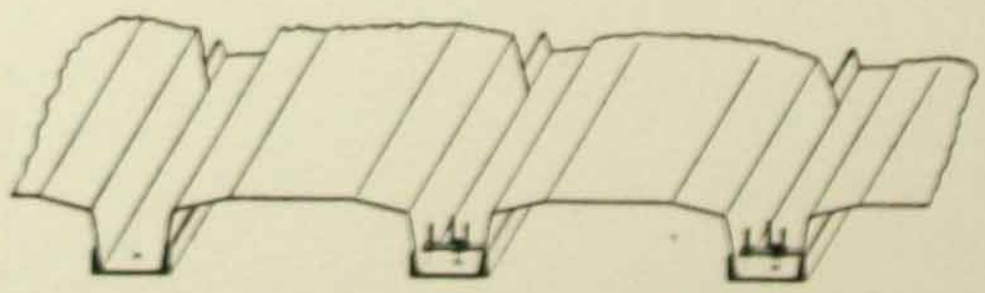


FIG. 25

BEAM AND JOIST

Placing the stretchers is a very simple matter. One man picks up an armful and drops them into position as he walks along.

The placing of the covers is also a one-man job. They are die pressed to the proper shape and fit snugly into position.

The forms are now complete and ready for placing reinforcement.

Successive steps

It is an interesting fact that the cost of placing and fastening the reinforcing rods is about 50% of that ordinarily allowed. This is due to the automatic support afforded by the prong spreaders which take the place of chairs, and are fixed in position, also to the complete elimination of wire and wiring.

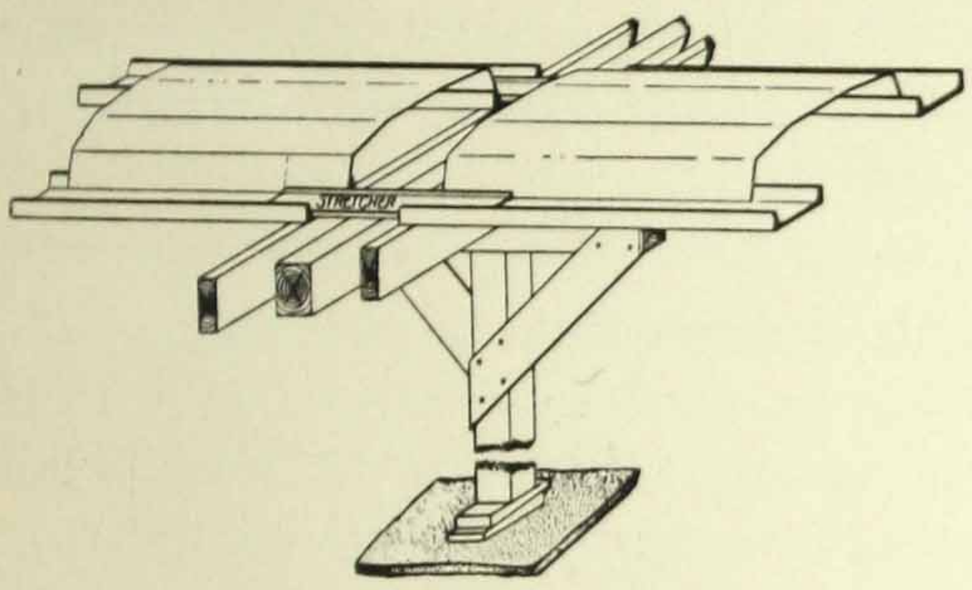


FIG. 26

Everything is now ready for the concrete.

Superior to beam and girder

Compared with the beam and girder type, the BLAW System for Beam and Joist Construction assures a saving of from 15 to 30 per cent in the amount of concrete necessary.

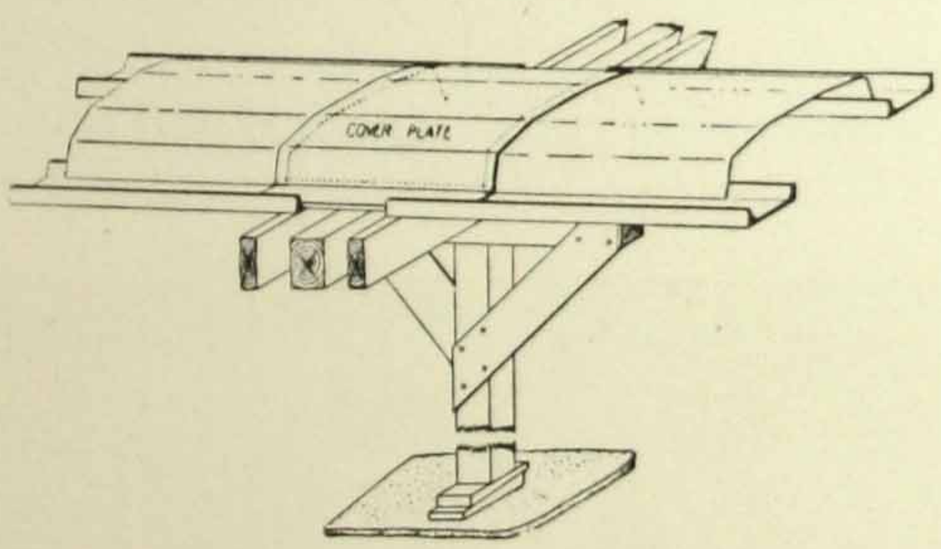


FIG. 27

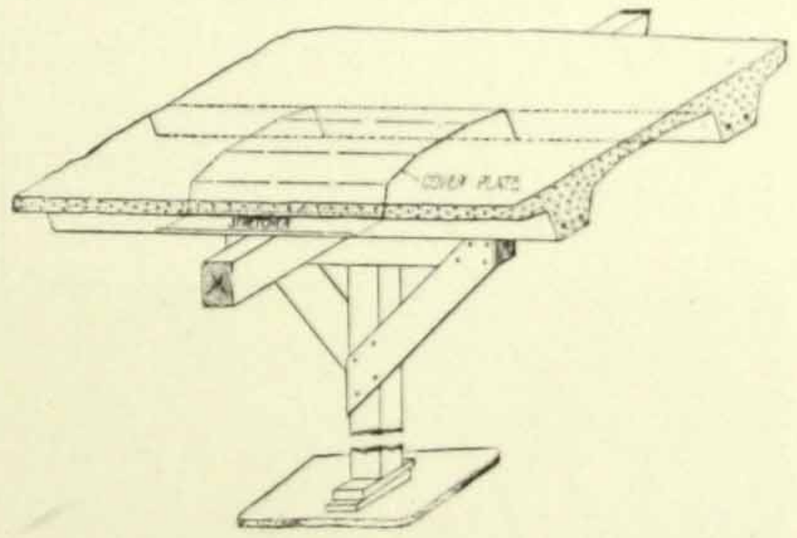


FIG. 28

Fig. 13 is a sectional view of a completed floor, before the forms are removed.

Stripping without reshoring

After 48 hours and upwards, depending upon the weather, the queen stringers are removed by slacking the wedges under them.

The whole weight of the floor or roof is now carried on the middle or king stringers, and neither they nor the posts under them are disturbed until the concrete has hardened and is ready to take the full load on the full span. There is no strain on the green concrete and no reshoring.

BLAW-KNOX

BEAM AND JOIST

Successive Steps

The channels, pans, and queen stringers, the major part of the equipment, are therefore released in 48 hours and upwards. The second shift requires only another set of posts, king stringers, stretchers and covers.

Early stripping accelerates hardening

The early stripping of the forms and consequent exposition of the green concrete to the air, is favorable to rapid hardening.

When the concrete is safe the wedges under the posts are slacked and the posts, together with the king stringers, are removed intact. This releases the covers and stretchers.

The forms are absolutely cement tight, hence there is a very noticeable saving of cement and a certainty of a smooth finish—no patching up is required.

Re-oiling of forms is only necessary about every fourth shift.

The forms are stiff enough to carry any weight of men and barrows that can be placed on them. No precautions whatever have to be taken to prevent collapse or accidents. Runways are simply laid down on the forms wherever most convenient, and are shifted from time to time as required.

The rigidity of the forms is clearly indicated in Fig. 29, which illustrates the BLAW System for Beam and Joist Roof Construction. Note however that the reinforcement is being placed and wired in the old way.

FIG. 29—PLACING AND WIRING THE REINFORCEMENT (THE OLD WAY)

FLAT AND RIB SLAB

The simplicity of the BLAW System as applied to Flat Slab and Rib Slab construction is even more marked than in Beam and Joist construction, since two operations, namely, the clamping of spreaders and placing of stretchers, are omitted.

Successive steps

The Flat Slab and Rib Slab types are illustrated in Figs. 15 and 16 respectively. The operations for both types are identical, except that the channels are turned flat side up in Flat Slab construction.

Operations identical

The posts are first set up, on 4′ to 8′ centers with double wedges under foot.

Then the stringers are placed in position. Note, however, that the panels will usually admit the use of queen stringers only. In such cases the panels butt up, end to end, and, there being no gap, no covers or stretchers are required.

Next the channels and panels are placed, simultaneously. No gauge rods are required as the panels themselves act as gauges, being drawn up tight against the channels as the work progresses, making an invisible and water tight joint.

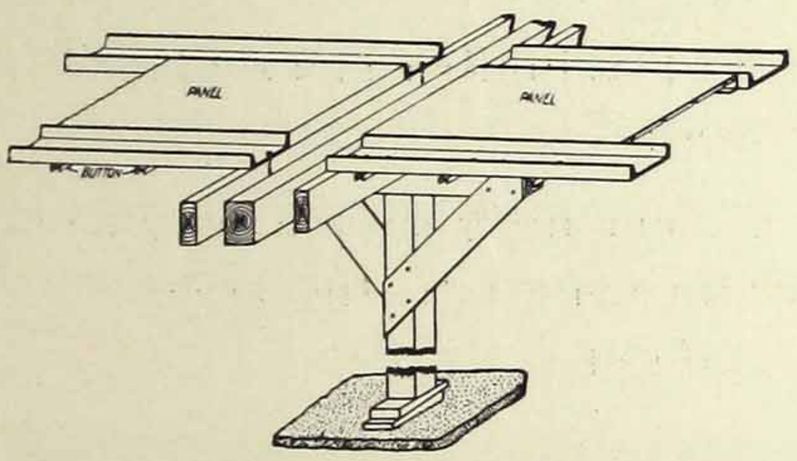


FIG. 30

All work is done from the top, none underneath.

Forms placed from above

Figs. 30 and 31 illustrate the treatment of a three stringer plan when a gap is unavoidable. The two stringer plan will, however, work out in the majority of cases.

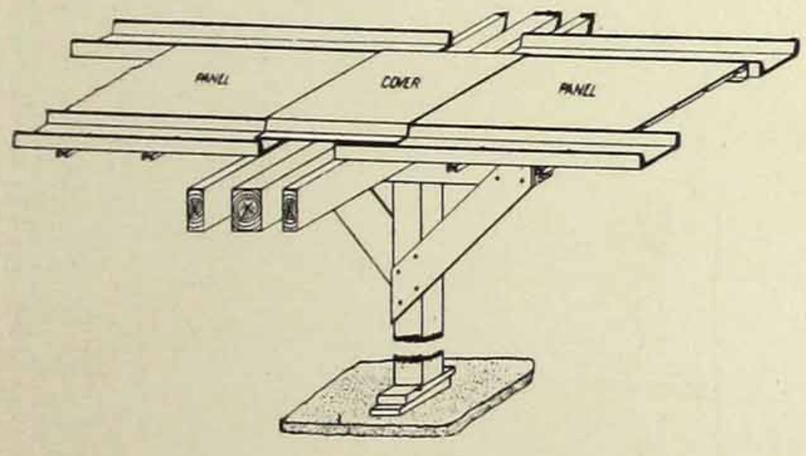


FIG. 31

Die pressed covers are provided for unavoidable gaps.

The forms are now ready for reinforcing rods and concrete.

BLAW-KNOX

FLAT AND RIB SLAB

Stripping two stringer shoring

If the three stringer method is used, as illustrated in Figs. 30 and 31, stripping is accomplished exactly as in the Beam and Joist system.

When the preferred two stringer Flat Slab or Rib Slab system is used, however, the method of stripping is slightly varied.

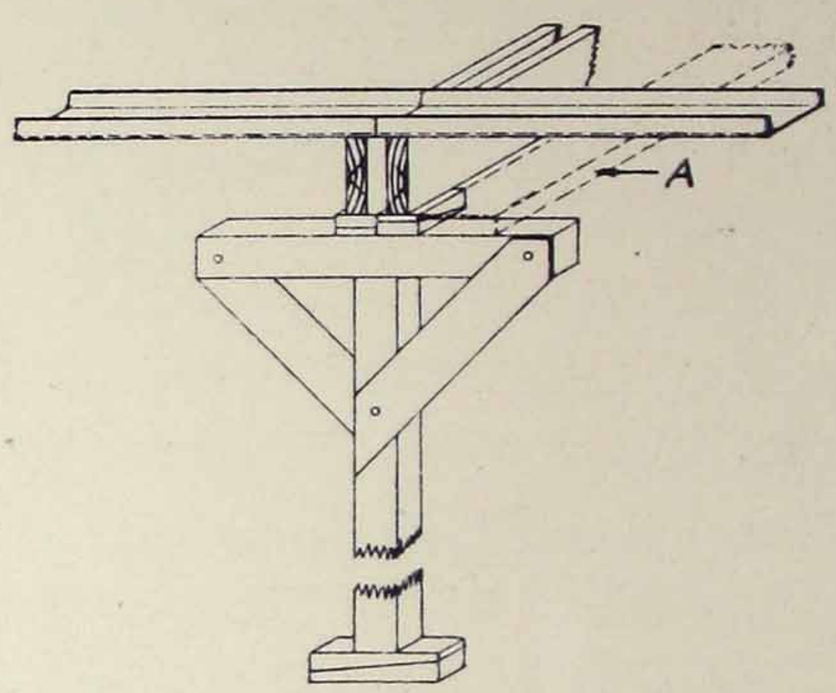


FIG. 32—TWO STRINGER PLAN

The wedges are slacked under one stringer, which is allowed to drop down into the position A, indicated by the dotted line in Fig. 32. This releases the channels and panels which are stripped away.

The stringer is then turned up on edge and re-wedged, and the same operation repeated with the other stringer.

Advantages of two stringer shore

The advantages of this method are that less lumber is used, and no covers or stretchers are held up in the work.

Note, moreover, that the floor itself is constantly supported during the process of stripping, so that no strain comes on the green concrete, and no subsequent reshoring is required.

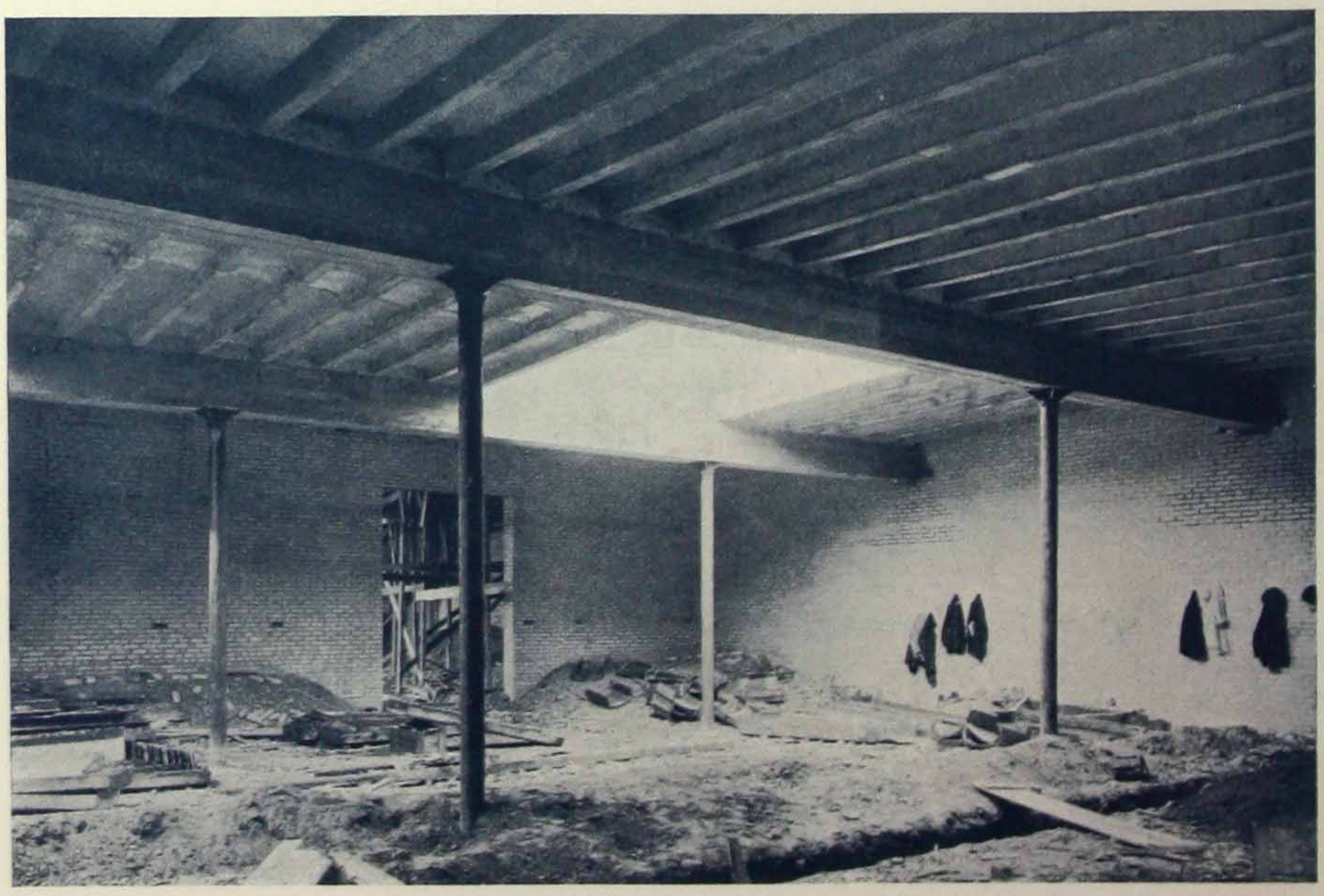


FIG. 33—ALL FORMS REMOVED—READY FOR WHITEWASHING

RELIEVED SLAB

Successive steps

No special illustrations are necessary to trace through the successive steps in Relieved Slab construction, as the operation is identical with that already described in connection with the Beam and Joist system.

Domes replace pans, and are clamped by spreaders in the same way.

There is this difference, however, that the two stringer method is *always* used in connection with domes, and there are no gaps and hence no stretchers.

Domes replace pans

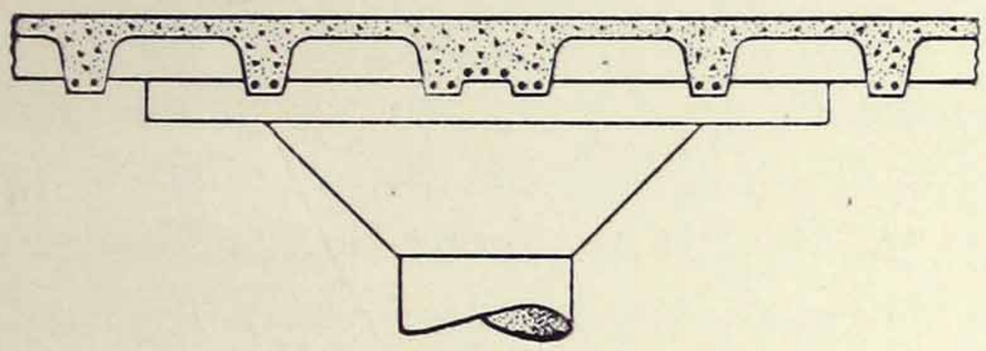


FIG. 34

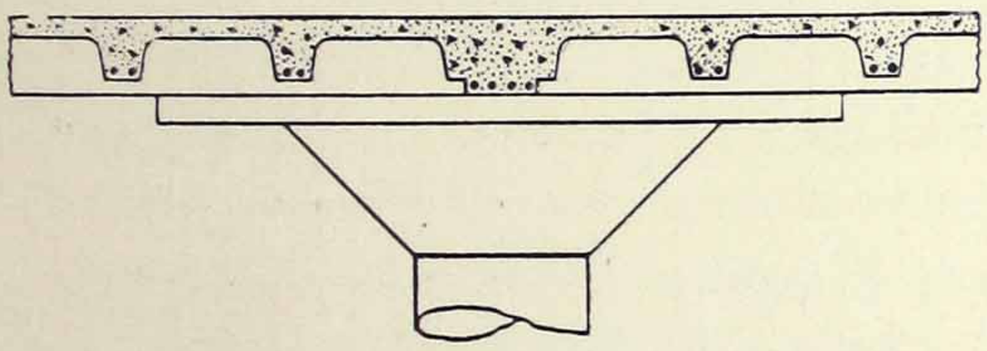


FIG. 35

It will rarely happen that the span between columns is exactly divisible by a whole number of domes—in fact it is preferable that it should not be. The excess of measurement is all thrown towards the center line between columns. This leaves what is practically a wide shallow beam which will carry the major reinforcement. This beam may either be left flush with the underside of the floor, as in Fig. 34, or may be allowed to drop below the floor 1¾", as indicated in Fig. 35. This arrangement, therefore, is not only in the line of good engineering, but breaks up the entire ceiling into a pleasing panel effect.

FIG. 36—GENERAL ARRANGEMENT OF THE BLAW SYSTEM

SPREAD-ER

PRONG SPREADER

Spreader an ingenious device

We have recently developed a form of spreader of the greatest value. Indeed, this little device may be called the key of the system. Considered as a spreader or binder its functions are exactly those of the original plain spreader, which was merely a straight strip of steel. Its added value, however, comes from the automatic spacing and securing of the reinforcement, and the elimination of chairs and wire, also labor of wiring.

The spreader is cut in dies to an exact length. Since the width of the channels and the thickness of the pans and domes is exact, it follows that the spreader always seats in an exact position. Hence the space between the spreader and the bottom of the channel is invariable. In other words, it is impossible that the *vertical* distance of the reinforcement above the bottom of the joists should vary.

Four prongs are cut from the opposite edges of the strip and turned up at right angles. They are spaced to take 1¼″ steel rods. Any smaller rod, however, may be used with equal certainty of correct *lateral* spacing. No matter where the rod happens to lie, when the prongs are pinched together at the top, the rod is automatically brought to the center of the space and held there. Exact *lateral* placement is thereby assured.

Cost of placing and fastening reinforcement reduced 50%

Like most great improvements, this is the last word in simplicity and results in cutting down the subsequent cost of placing and wiring reinforcement fully 50 per cent.

With this method of fastening the reinforcement beyond the possibility of accidental displacement, the architect is for the first time *certain* that the rods are bedded in *exactly* the position called for by his drawings.

BLAW-KNOX

PRONG SPREADER

SPREADER

A boon to contractor

The Prong Spreader is equally important to the contractor. When BLAWFORMS are set up the contractor finds the channels already provided with seats for his reinforcement. Rods are merely laid down between the prongs and the prongs then pinched together by blacksmith tongs, and if necessary, lightly pressed down at the ends, so as to hold the rod firmly in a central position. The contractor, therefore, is relieved of all expense for chairs and wire, and the labor of securing is nearly wiped out.

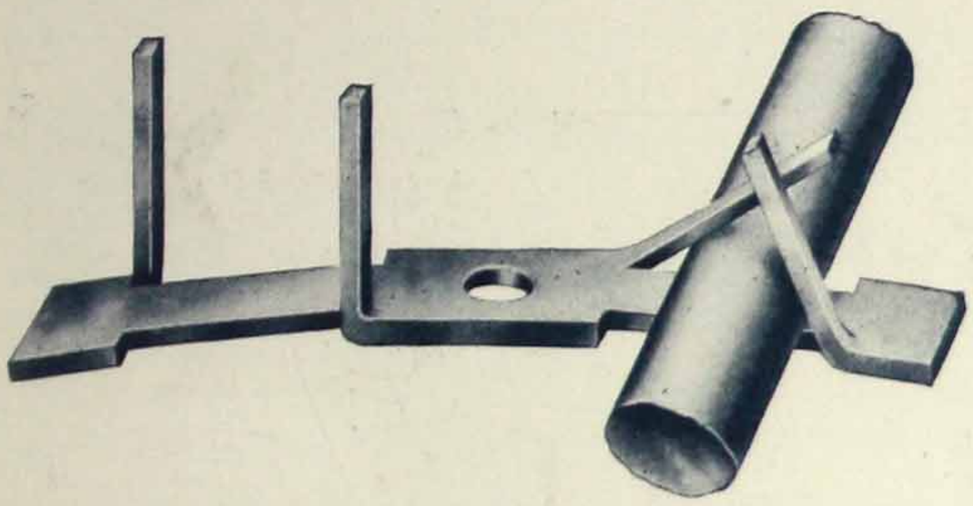


FIG. 37—PRONG SPREADER

WIRE LATH CEILING

CEILING

Lugs hold wire lath in position

Fig. 38 shows the spreader bolt and nut which is used in tightening the forms. When the latter are stripped, the bolt is recovered while the nut is necessarily left in the work. If a plastered ceiling is to be hung, we supply at low cost a pressed steel lug, Fig. 39. The contractor uses a ⅜" bolt passing through the hole in the lug up through the hole in the concrete, finally threading into the spreader nut. This binds the pencil rods firmly to the underside of the joists and wire lath can then be attached.

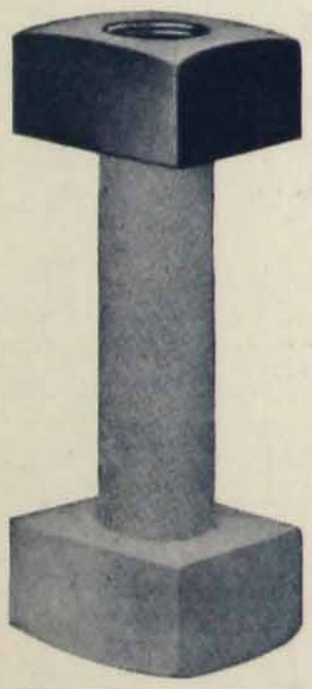


FIG. 38—THE NUT

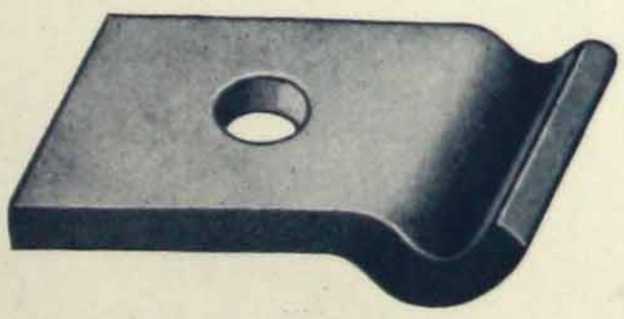


FIG. 39—THE LUG

FIG. 40

The plasterer will note that the joists are already carefully levelled so that his work comes true automatically, and the nuisance of placing and bending suspension rods is avoided. All the above is clearly indicated in Fig. 40.

NO RE SHORING

NO RESHORING

Stripping accomplished without reshoring

Previous description has probably been followed, but the point is so important and so peculiar to the BLAW System that Figures 41 and 42 are herein inserted for greater clearness. These refer to the 3-stringer method—the 2-stringer method having been already described on page 16.

Work on upper floors not held up during stripping

The ends of channels supporting the pans rest on the queen stringers and the gap is closed by a stretcher and cover.

After the concrete is well set—say in from 2 to 4 days, according to the weather—the wedges are slacked under the queen stringers and the latter removed. This releases the channels and pans which are thereupon stripped and carried to the next shift. The king stringer supports the weight of the floor undisturbed and of course holds up the stretcher and cover until the concrete is fully hardened, but without stopping the progress of the work. During the period of hardening, hastened by exposure to the air, the floor is supported on short spans of 6 or 8 and rarely 10 feet. The forms for upper floors can therefore be set up without the danger of straining the green concrete in the floors below, since the posts carrying the different floors will naturally stand over each other.

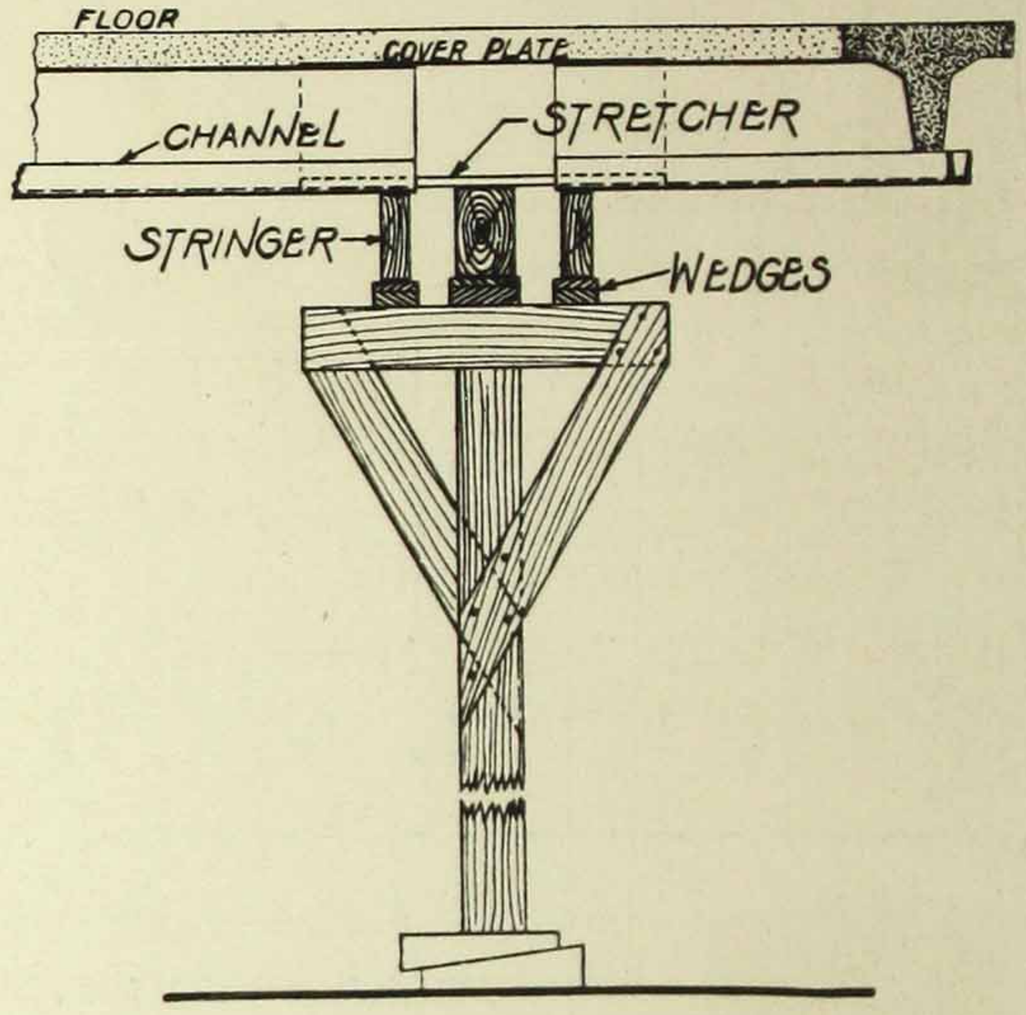


FIG. 41—SHOWING METHOD OF SUPPORTING FORMS TO PERMIT OF INDEPENDENT STRIPPING

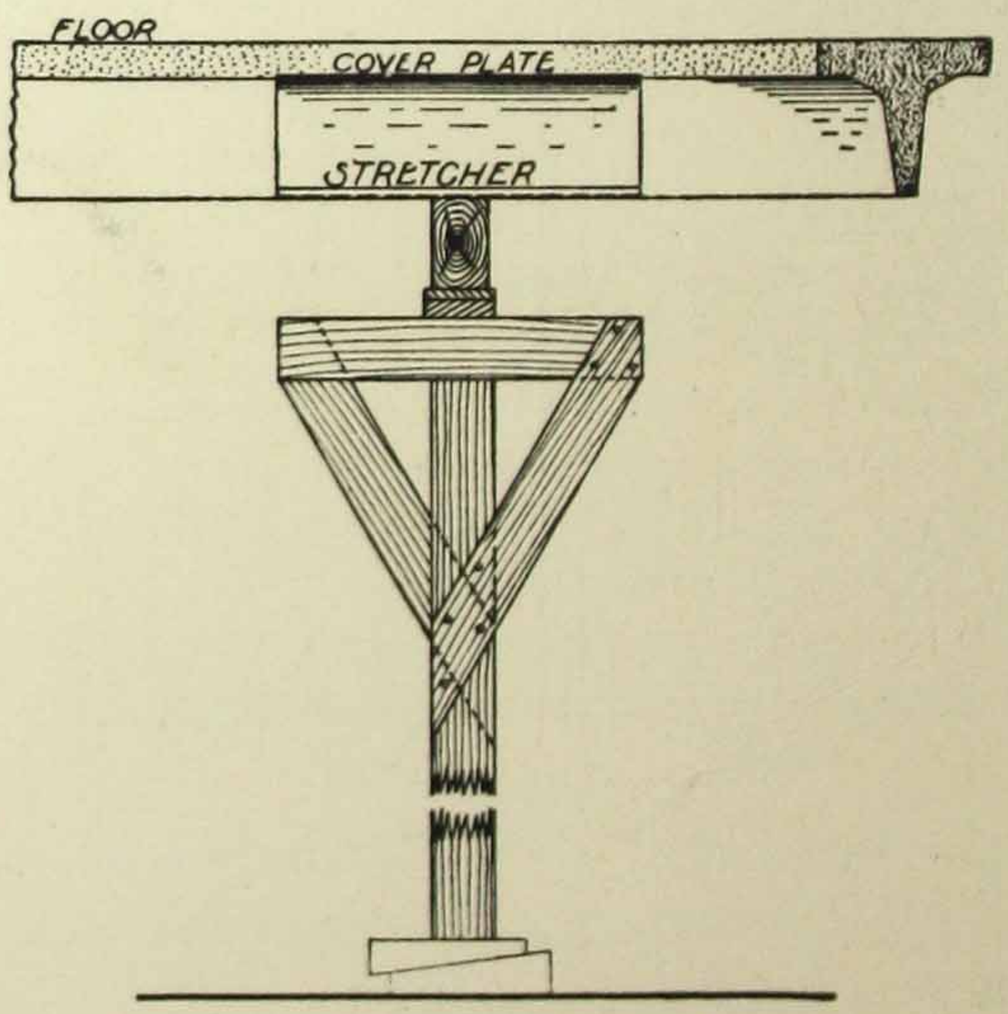


FIG. 42—SHOWING FORMS STRIPPED BUT WITH CONCRETE SUPPORTED ON 6 TO 10 FT. SPANS FOR HARDENING

RUNWAYS BETWEEN SHORES

RUN-WAYS

Fig. 1 illustrates the ordinary construction for wooden forms. The whole space is filled with a veritable forest of posts and bracing.

Runways substantially unobstructed

Fig. 2 is a corresponding view of the shoring required with the BLAW System Note, however, that this illustration does not show the adjustable shore which is a part of our permanent plant.

Fig. 43 is the plan lay-out from an actual Beam-and-Joist job showing one row of posts through the center of the bay, the clear span between girders being 17′ 3″. There is of course a line of shoring under each girder box, but the runway is substantially unobstructed.

Spacing posts

The same advantage obtains in connection with the panel and dome systems. Fig. 44 illustrates the panel assembly for a standard bay, columns on 20 ft. centers both ways. Nine posts are required to the bay, supporting three lines of stringers. Six feet channels and panels will be used throughout. The 8″ expansion gaps over the stringers will be closed by covers. The plinths are 7′ 6″ square leaving 12′ 6″ in the clear. This space is exactly served by two 6″ channels and cover. In the other direction, spacing each way from center, is a strip 12½″ wide closed by a filler of plank the ends of which rest on the stringers, one side being supported on the plinth form and the other carried by the buttons on the adjacent channel.

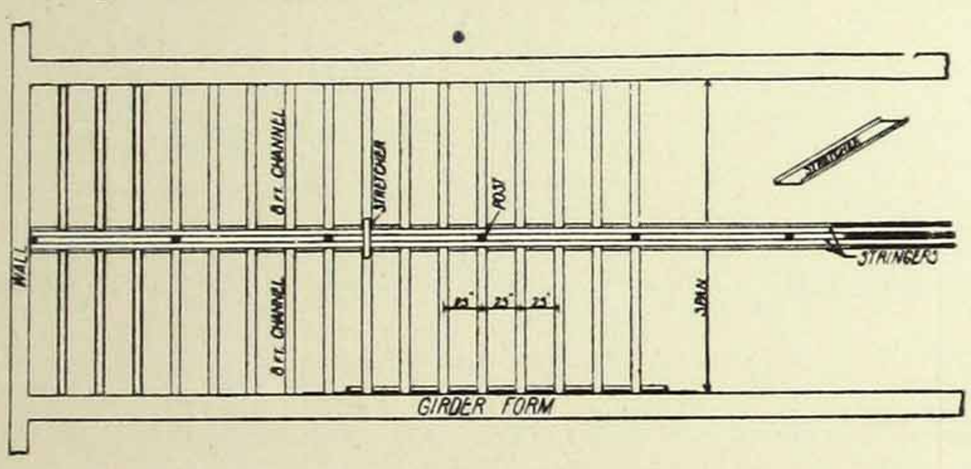


FIG. 43—SPACING OF POSTS FOR BEAM AND JOIST CONSTRUCTION

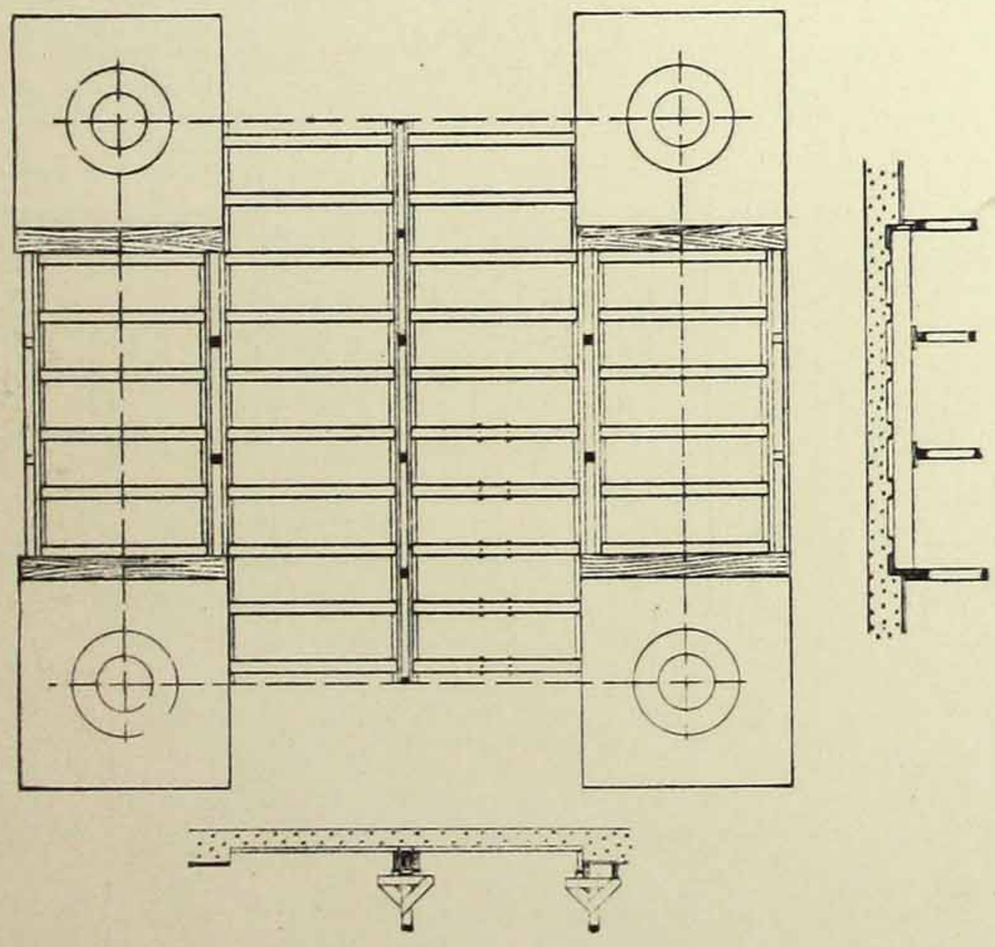


FIG. 44—SPACING OF POSTS FOR SLAB CONSTRUCTION

No intermediate supports required

The short channels are sufficiently stiff to carry any ordinary weight of floor without intermediate supports. With very heavy floors and 8 or 10 ft. channels we sometimes set up a plain 4″ x 4″ scantling as a temporary intermediate support under the middle of the channel.

BLAW-KNOX

DOUBLE JOIST

D O U B L E J O I S T

Double channels used

The architect frequently specifies an extra heavy joist under a line of partitions. Fig. 45 shows at a glance how this is secured by the use of double channels and a filler piece.

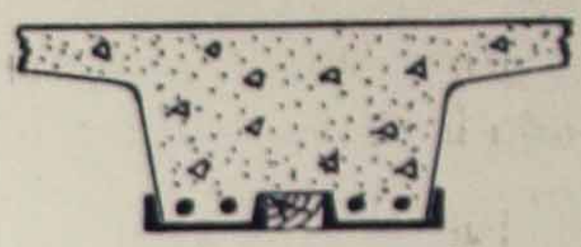


FIG. 45—DOUBLE JOIST

C O N D U I T S P A C E

Conduit space readily provided

A plastered ceiling may be required in connection with the dome system. In that case, note that the transverse joists are always 1¾" higher than the longitudinal joists—see Fig. 40. This leaves a clear space under them and above the ceiling for wiring, etc.

When the wiring must run at right angles to the deep joists, wooden blocks are set in the joist forms and knocked out after the forms are stripped, or short pieces of pipe or paper roll may be set and left in the concrete.

A D J U S T A B L E S H O R I N G

Shoring adjustable and collapsible

The BLAW System includes a thoroughly practical adjustable shore. The design is such that not only can the shore be adjusted to the clear height, but is collapsible so that it can be crated in bundles and re-shipped from job to job. The detail of this shore does not concern the contractor or architect, but we mention it as allowing us for the first time to include the centering for supporting the forms as a part of a flat contract price.

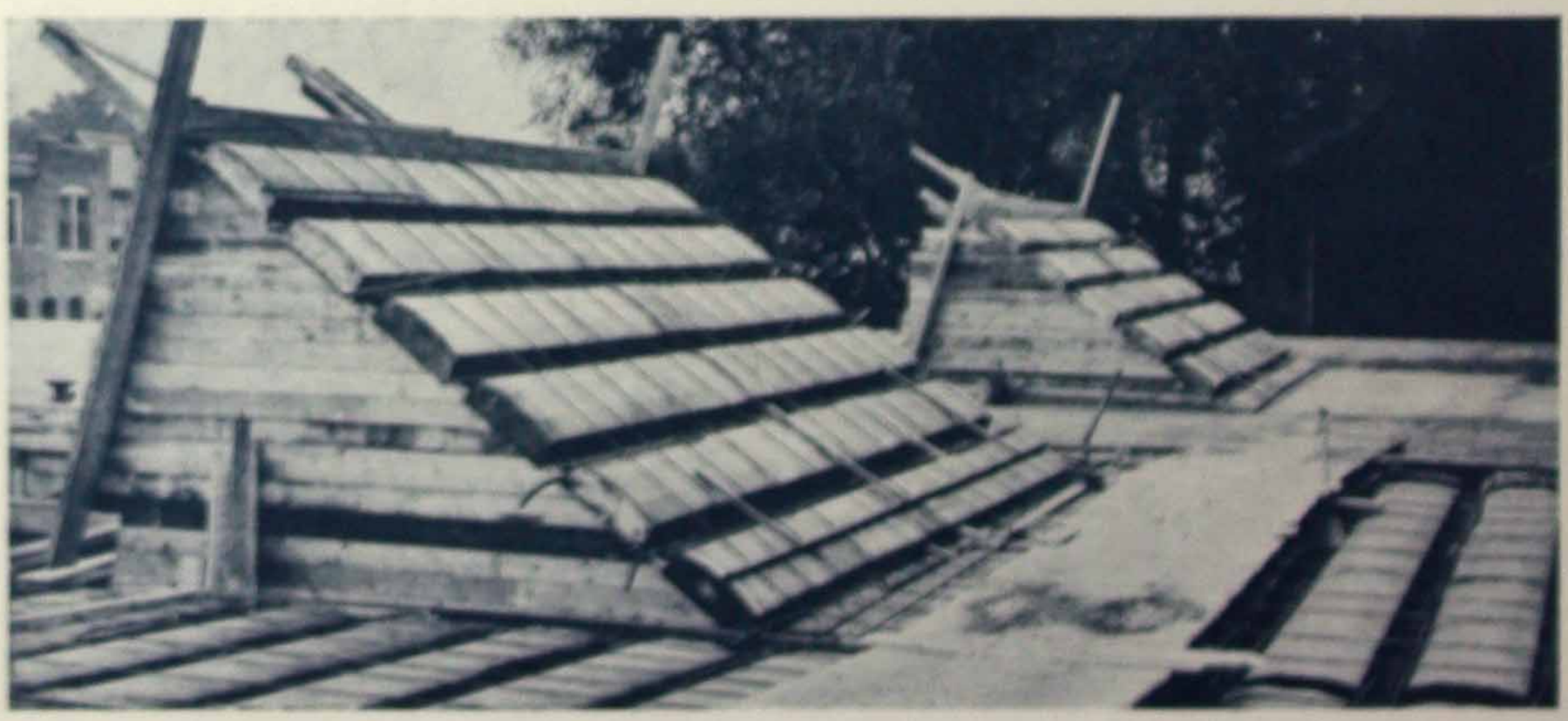


FIG. 46—APPLICATION TO A SAW-TOOTH SKYLIGHT

BLAW-KNOX

PERFECT ALIGNMENT

ALIGNMENT

Note that the forms are self-aligning. It is only necessary to make sure that the first line of channels is exactly placed and after that everything necessarily comes true, being gauged by the forms themselves in the panel system, or by special gauges in the pan and dome systems—see Fig. 23. There is therefore no longer any possibility of "snaky" joists.

"Snaky" joists mechanically eliminated

REVERBERATION

Experience has developed a wholly unexpected value in the domed or cellular ceiling. Several instances have come to our notice where a large office room having a flat-slab or beam-and-slab ceiling, is found to reverberate to the voice so badly as to interfere seriously with conversation. The hollow sound is offensive to the ear and is particularly distressing when multiplied by several voices speaking at once. Some cases of reverberation have been so aggravated that it has been necessary to face the walls and ceiling with panels of a soft, pressed and non-elastic material, like asbestos panels. It was wholly a surprise to us when our attention was called to the fact by a prominent engineer that this reverberation is wholly absent with a cellular ceiling.

Cellular ceiling obviates reverberation

The theory for this action is rather obvious, but need not be introduced here. A notable instance has just come under our observation in which the same building has part of its rooms with a flat ceiling and part with a domed ceiling, the difference being very noticeable. This phenomenon is of recent observation but appears to be sufficiently well established to call attention to it.

Surprising phenomenon

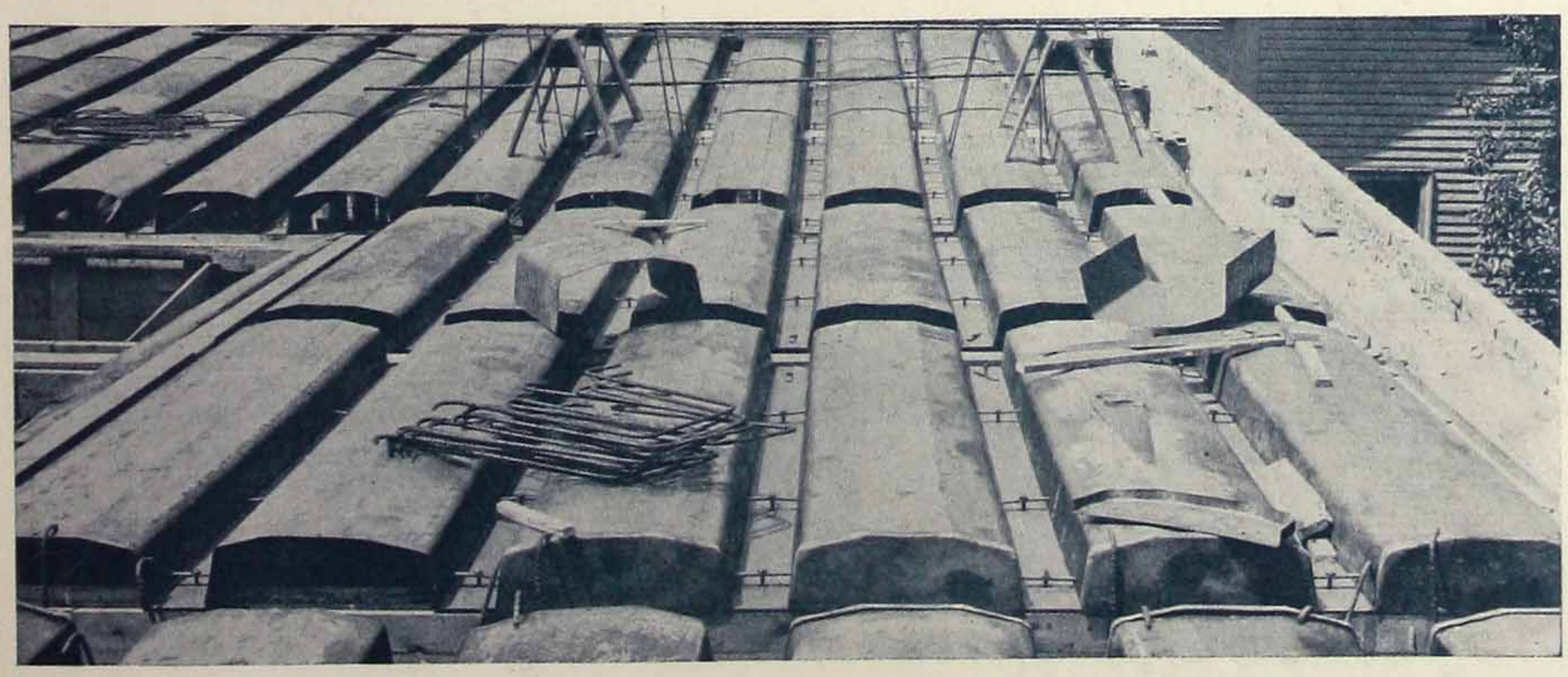


FIG. 47—SHOWING PANS, COVERS, SPREADERS AND HEADERS

BLAW-KNOX

THEORY OF RIB SLAB

Introducing new economy

It remains only to consider the specific design of the Rib Slab as compared with the accepted design of a corresponding Flat Slab floor.

The forming of the Rib Slab is identical with that of the Flat Slab except that the channel is *turned over* with the hollow side up, as shown in Fig. 16. The same button is used except that it also is reversed.

One might hastily assume that the rib is a mere freak or accidental construction arising from reversing the position of the channel but without distinctive value. On the contrary, this simple expedient has introduced a new economy into the building arts, the aggregate of which, reckoned in the combined money cost of concrete and steel, will range from 3 to 4 cents per square foot saved over a plain Flat Slab of equal strength. The economy, however, can be secured *only* by the BLAW System since the rib is shaped without any increase of form cost whatsoever. If any attempt were made to form the rib by any other method it can readily be seen that the cost of making it would more than offset the economy secured.

Theory demonstrated in application to oblong bays

We therefore invite careful attention to the following demonstration in which we have purposely avoided technicalities and formulas, and have attempted to treat it in language which will be understood by anyone having an elementary knowledge of the principles of floor design.

We will first consider the Rib Slab in connection with oblong bays—that is, a bay in which the columns are spaced wider in one direction than the other. Take the case of a slab covering a bay say 20′ x 25′. If designed with reference to the 20′ span, its thickness will be 8″ for a 200 lb. live load; but if designed for the 25′ span, its thickness will be 10″. Now the latter thickness in the plain slab must necessarily govern.

Such a floor will be reinforced on the two-way system by two sets of rods at right angles to each other at the respective depths *a* and *b*.

This presents a contradictory problem, namely—how to provide that the same floor shall have two different thicknesses at the same time, corresponding to the two dimensions of the bay.

THEORY OF RIB SLAB

Rib Slab solves apparent paradox

The Rib Slab is the precise solution of this apparent paradox.

Fig. 48 is a section of a 10″ Flat Slab adapted to the 25′ span and is taken as looking into the direction of that dimension.

Fig. 49 is a corresponding section of the 8″ slab required by the 20′ span.

Query—how shall both dimensions exist at once?

Take a strip of the 10″ slab 25″ wide, (the unit width of our forms) and displace the lower (longitudinal) reinforcement right and left, concentrating it in two rods having an equivalent area of steel and 3″ apart, but maintaining its depth *a* unchanged.

Raise the upper (transverse) reinforcement from the depth *b*, Fig. 48, to the depth *c*, Fig. 49, which would be called for in the 8″ slab, but do not concentrate it. Having now got the reinforcement out of the way, we are at liberty to cut out some useless concrete between the ribs shown by the shaded area in Fig. 50—and at once we have the Rib Slab

Four distinct economies effected

Now what has happened?

In the first place, 16 per cent of the concrete has been saved.

Second, the longitudinal reinforcement has been reduced, due to the above reduction of dead load.

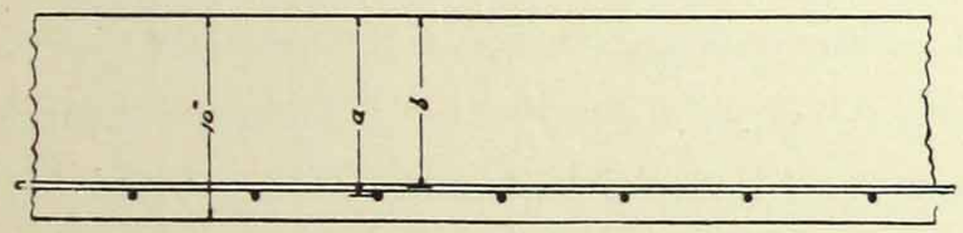


FIG. 48—TEN-INCH FLAT SLAB FOR 25′ SPAN

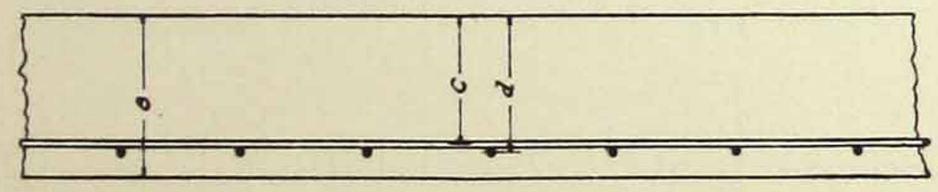


FIG. 49—EIGHT-INCH FLAT SLAB FOR 20′ SPAN

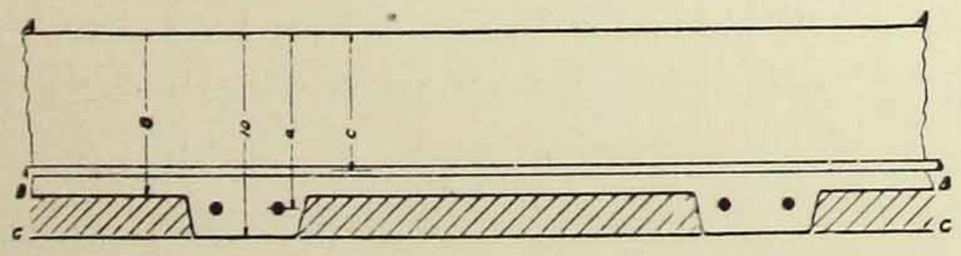


FIG. 50—RIB SLAB FLOOR FOR 20′ x 25′ BAY

Third, the cost of steel is slightly reduced owing to the relatively lower price per ton of the larger rods.

Fourth, the labor of placing is reduced at least 50 per cent, due to the fact that only two rods have to be handled instead of four.

On the other hand, the transverse reinforcement has been raised 1½″ which would increase its area were it not that this is offset by the 16 per cent reduction of dead load.

THEORY OF RIB SLAB

Rib Slab but a new and more economical type of Flat Slab

The foregoing analysis applies to the slab proper between the plinths. When all the concrete over the supports is considered, the saving becomes 13 per cent of the total.

As to the steel, it must be remembered that about 50 per cent is found in the plinths to take care of the negative bending moment. The reduction of 16 per cent of dead weight in the slab proper reappears as a reduction in the amount of this negative reinforcement. Each case must be worked out by itself according to conditions, but, broadly speaking, the general result will be a saving of from 2 to 6 per cent in the total steel.

By this simple expedient, which is the natural outgrowth of the BLAW System, we are able to present a new type of flat-slab floor showing a reduction in composite cost of from 3 to 4 cents per square foot, depending upon the load and relative span of the bay.

Applying theory to square bays

In designing a square bay it is on the whole best to consider the rib as added to the normal thickness. Let Fig. 51 represent a section of floor for a square bay, and consider it from this view-point. The essential result remains the same.

Concentrate the lower reinforcement as before and drop it say 1½″ into a rib which we will now assume to be added to the thickness of the slab. Then drop the upper system of reinforcement ½″ into the plane formerly occupied by the lower system. We may now elect either to take the reduction of steel due to the increased depth less the effect of the slightly increased weight, the thickness of slab remaining unchanged—or we may take a certain determined thickness off the top of the floor, as shown by the shaded strip. If the latter, we have reduced dead weight by the amount of the shaded strip less the weight of the rib, and can proceed to a recalculation of the steel. The net saving in composite cost will be found to work out about the same.

Incidentally an advantage by no means to be lost sight of is the fact that a perfect bond is assured on both systems of rods. Instead of being in contact at their points of intersection so that the concrete cannot fill around them, they are 1½″ apart, thus insuring an absolute bond throughout the entire length in both systems.

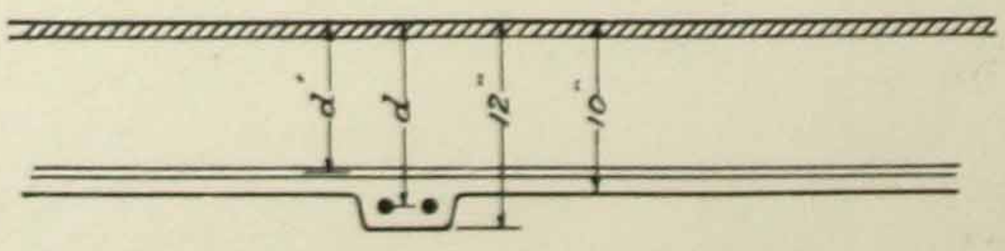


FIG. 51—DEMONSTRATION FOR A SQUARE BAY

THEORY OF RELIEVED SLAB

Relieved Slab has many advantages

It is well recognized that the advantages of the Flat Slab are partially nullified by two offsetting disadvantages; namely, the great weight of the floor and the large amount of useless concrete wasted. This has come to be accepted as a necessary evil, which custom has tolerated, since the balance of advantage is in the right direction.

Consider for a moment that the primary function of concrete is to resist compression—and that the only part of the concrete in the Flat Slab which is effective for this purpose is that above the neutral axis, say the upper third—the lower two-thirds of the concrete serving only to secure a bond on the reinforcement and afford fire-proofing.

All this is going over familiar ground, and many attempts have been made to cut out a large per cent of this useless concrete by dome forms thus saving cost and dead weight. This attempt has always run up against the fact that it costs more in form work to save the concrete than the value of it when saved. At this point the BLAW System steps in with a complete and practical solution, reducing the form cost at one stroke to practically that of the plain flat-slab.

Lateral displacement of reinforcement

In the Rib Slab we displaced the lower system of reinforcement laterally, concentrating it in the ribs—the upper reinforcement being displaced vertically but not laterally. In the Relieved Slab the upper system is also displaced laterally and concentrated in transverse ribs. This gives access to concrete unobstructed by reinforcement, so that we can now take out a block of dead concrete extending practically up to the neutral axis. The great saving in dead load becomes immediately apparent.

The plant and process are fundamentally the same as used throughout the whole BLAW System, the difference being in the use of domes in place of pans or panels. As in all other modifications of the BLAW System, the dome is strictly *permanent plant*, removed from the work and re-used indefinitely.

It will be noted from Fig. 7 that the Relieved Slab shows longitudinal joists 2″ deeper than the transverse joists. This permits of crossing the reinforcement with a clear space of 1¾″ between the rods, thus insuring a perfect bond.

Since this type of floor is always designed with reference to deflection, it will often enable the steel to be somewhat reduced in the longitudinal joists when the bay between the columns is nearly square.

THEORY OF RELIEVED SLAB

Enormous saving in concrete and dead weight effected

Often, however, the columns are spaced wider in one direction than in the other. As in the Rib Slab, the deep joists will always run the long way of the span, thus giving a well balanced design. The reinforcement is of course on the well known two-way system.

The actual saving in concrete and dead weight in the slab itself between the plinths ranges from 42 to 48 per cent. Including the plinths the saving of total concrete per bay falls between 30 and 37 per cent, dependent upon load and span.

This great saving in dead weight and cost of concrete re-asserts itself in a similar saving in reinforcement, both for the positive and negative moments.

Tables of Safe Loads

We have worked out elaborate tables covering spans from 15 to 30 feet varying by feet, and for all ratios of bay from a square bay to one having the long dimension one-third greater than the short dimension, also varying by feet—and for loads of 100, 150, 200, 250, 300, 400 and 500 lbs. on each. These Tables of Safe Loads offer a general guide to the designer and tabulate many valuable comparisons referring to a Flat Slab of the same strength under the same conditions. We illustrate by a single example as follows:

Bay	20′ x 25′
Live load	400 lbs. per sq. ft.
Depth of dome	8″
Thickness of floor	3″
Total depth from bottom of joist to top of floor	12.75″
Total concrete in bay	375 cu. ft.
Concrete saved per bay	184 cu. ft.
Per cent of concrete saved	33.0 per cent
Value of concrete saved per bay at 30c per cu. ft	$55.20
Relief of dead weight per column per floor	12.89 tons
Total load (including L. L.) per column per floor	101 tons
Steel saved per bay	294 lbs.
Per cent of steel saved	10.5 per cent
Value of steel saved per bay at 5c per lb	$14.70
Total value of material saved per bay in floor alone	$69.90
Total saving per sq. ft. of floor	14 cents

The above refers to the floor alone, but affords data from which the value of the additional saving in the columns and footings can be computed. It also refers to material alone and takes no account of the value of the labor saved by the BLAW System, which is a separate matter.

The above Tables, printed on heavy paper for use on the drafting table, will be furnished free on request.

D E A D L O A D

DEAD LOAD

Dead load never earned a dollar.

Dead load lessened considerably

Cut it down and correspondingly lighten the weight and cost of your walls, columns, foundations and piling.

This book is devoted primarily to the consideration of the saving in the cost of floors alone. It barely alludes to the scarcely less important secondary saving in the walls, columns, foundations and piling due to the reduction of dead weight in the floors. No doubt the architect has already forecasted the value of this saving. It may not have occurred with equal force to the owner.

It is obvious that if we save from 20 to 40 per cent of the weight of each floor, the total weight accumulated from floor to floor is reduced by the aggregate cumulative weight saved in each floor, and the walls, columns and foundations are correspondingly reduced in section. This may be illustrated by a recent example.

Pertinent example

We were asked by a firm of engineers to compute the saving due to BLAWFORMS against a building already completed having beam and girder floors in which the costs had been ascertained. The following were the results:

Total weight saved in five floors	575 tons
Weight saved per column per floor	2.9 tons
Weight saved on column footing	14.5 tons
Total saving in reinforced steel	80,000 lbs.
Value of concrete saved	$2,880
Value of steel saved	4,800
Net value of labor saved	3,900
Total saving in floors above	$11,580

Note particularly that the above tabulation is of the *direct* savings in the floors themselves. We did not attempt to re-compute the values of the secondary saving in the walls, columns and foundations except in a rough way which indicates that the total saving in this small building would aggregate approximately $18,000 to $20,000. This will vary with conditions but the secondary saving is always very large.

BLAW-KNOX

CREW AND PLANT

Old way

SMALL CREW AND PLANT

Constructors have long been dissatisfied with the system—or lack of system—which has seemed to be inseparable from the use of wood forms. In the majority of cases, wood forms are made on the work, mostly by hand, and the units must be sufficiently small for convenient handling. The various pieces must be fitted and securely nailed in place. When the work is stripped the forms must be pried loose, sometimes plank by plank, cleaned and patched up wherever necessary, and then re-fitted to the next shift. This operation is recurrent throughout the work and calls for a large crew of skilled men—in other words, a heavy payroll.

The forms for one entire floor are usually placed and reinforced before beginning to pour concrete. When ready the pouring must be pushed as fast as possible on account of the time required for hardening before it is safe to strip for the next shift—usually from ten days to two weeks. In the meantime the concrete crew will have filled the forms in two or three days at most. When the pouring is finished and before the next floor is ready the concrete crew must put in its time at whatever odd jobs they can find. So there is a constant lack of co-ordination between the form crew and concrete crew, which means a big waste of time and money.

BLAW System

By this time you understand that BLAWFORMS are stripped on the second day in normal weather and in three or four days in cold weather. You appreciate that the shoring is not disturbed when the forms are stripped—that is, the forms do not wait for the concrete. You have learned that the forms are handled and re-set as fast as they are taken down. You have learned that the forms are strictly standardized and that field fitting is abolished. You have seen that a single piece representing 12 to 20 sq. ft. of floor can be handled by two men—as far as weight is concerned it could be handled by one. It is therefore immediately apparent to you that the whole scheme of construction is altered. You no longer have heavy payrolls because you no longer have big unwieldy crews trying to keep out of each other's way. On the contrary, you use a *small* mixer and a *small* concrete crew. Every man works at his own job all the time, concrete is placed *every day*—and down *comes the payroll.*

BLAW-KNOX

CONCLUSION

Every constructor dreads to estimate form work. Two constructors may be 100 per cent apart on the same job. Even the same contractor finding he has under-estimated forms on one job doubles his estimates on the next one.

The great war has done us a notable service in clinching in our minds the idea of *standardization*. BLAWFORMS are one expression of this idea applied to the most baffling detail of construction work.

All the forms are reduced to a standard material, die-pressed in standard dimensions, and assembled in a standard way by a standard crew. Here is absolute uniformity of method, and certainty of uniformity of cost—the short word for which is "economy."

Anything less than standardization is dearly bought at any price.

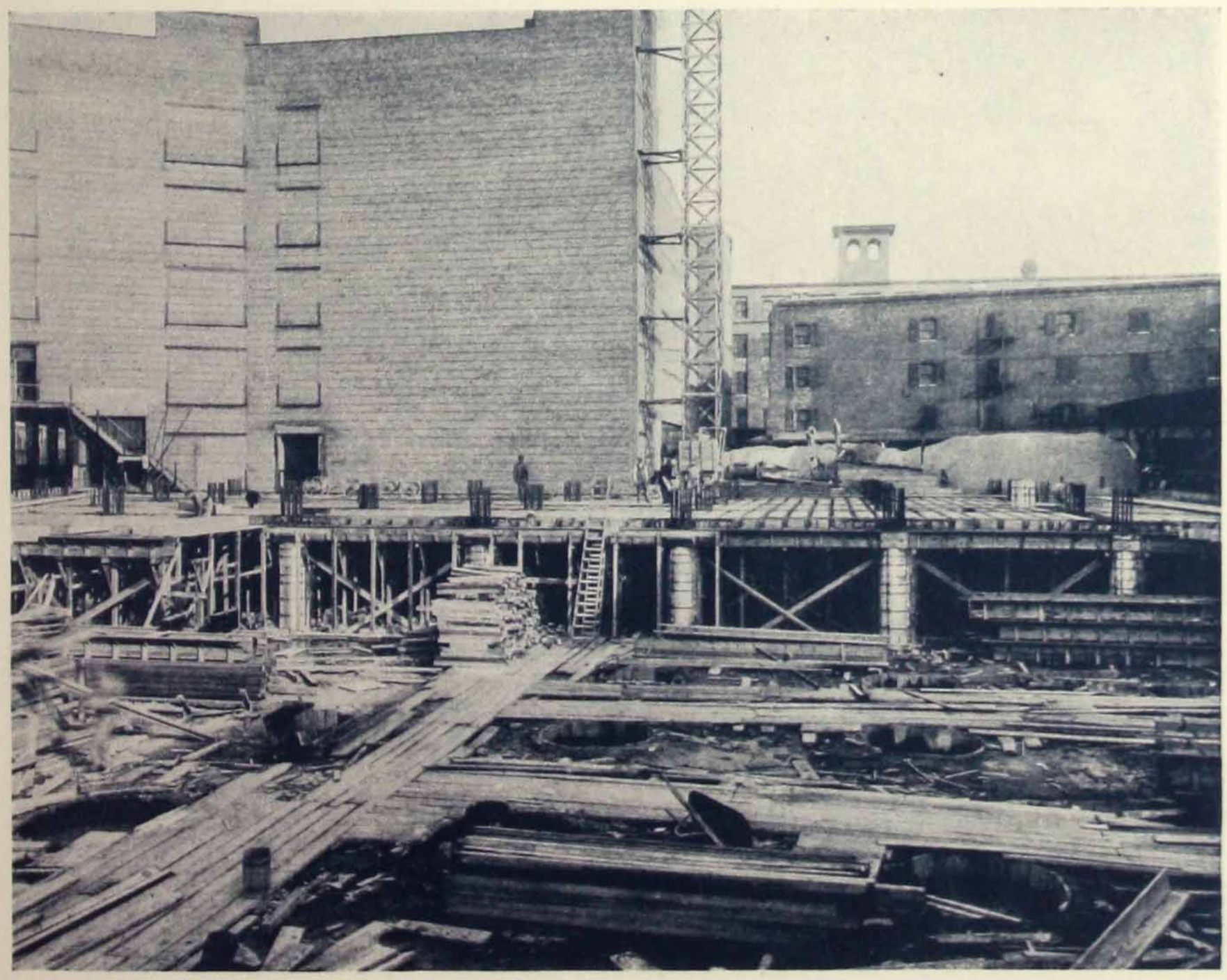


FIG. 52—BLAW CIRCULAR COLUMN FORMS ON BEAM AND GIRDER CONSTRUCTION

CONCLUSION

Standardization only assurance of economy

BLAW-KNOX

C O L U M N F O R M S

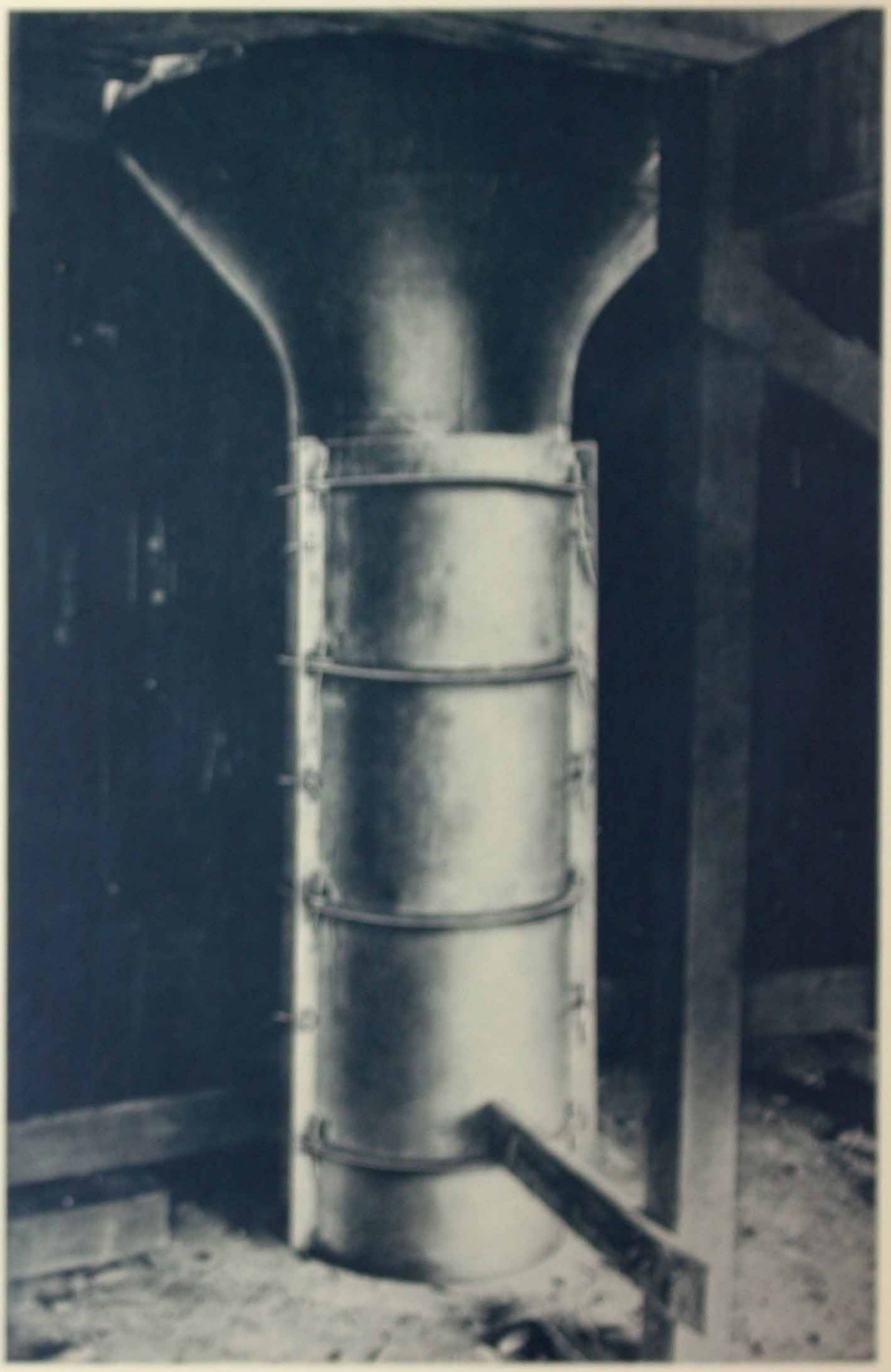


FIG. 54—STANDARD BLAIR COLUMN FORM WITH FLARE BELL HEAD

COLUMN FORMS

COLUMN FORMS

Can be used with any method

While BLAW Adjustable Circular Column Molds and Heads are peculiarly adapted for use in the BLAW System for Floor and Roof Construction, they can be used with equally good results in connection with any other method.

In the BLAW System we naturally use these forms.

We also contract, through our Erection Department, for the erection of BLAW Column Forms in connection with any other method of Floor and Roof construction, a service which we have rendered to builders in every section of the country for the past ten years.

On the other hand, the simplicity of BLAW Column Forms give them an especial appeal to the builder, on a lease basis, where the job is too small to make our services economical. In such cases we furnish detailed instructions for the use and care of the forms, and the most economical erection schedule.

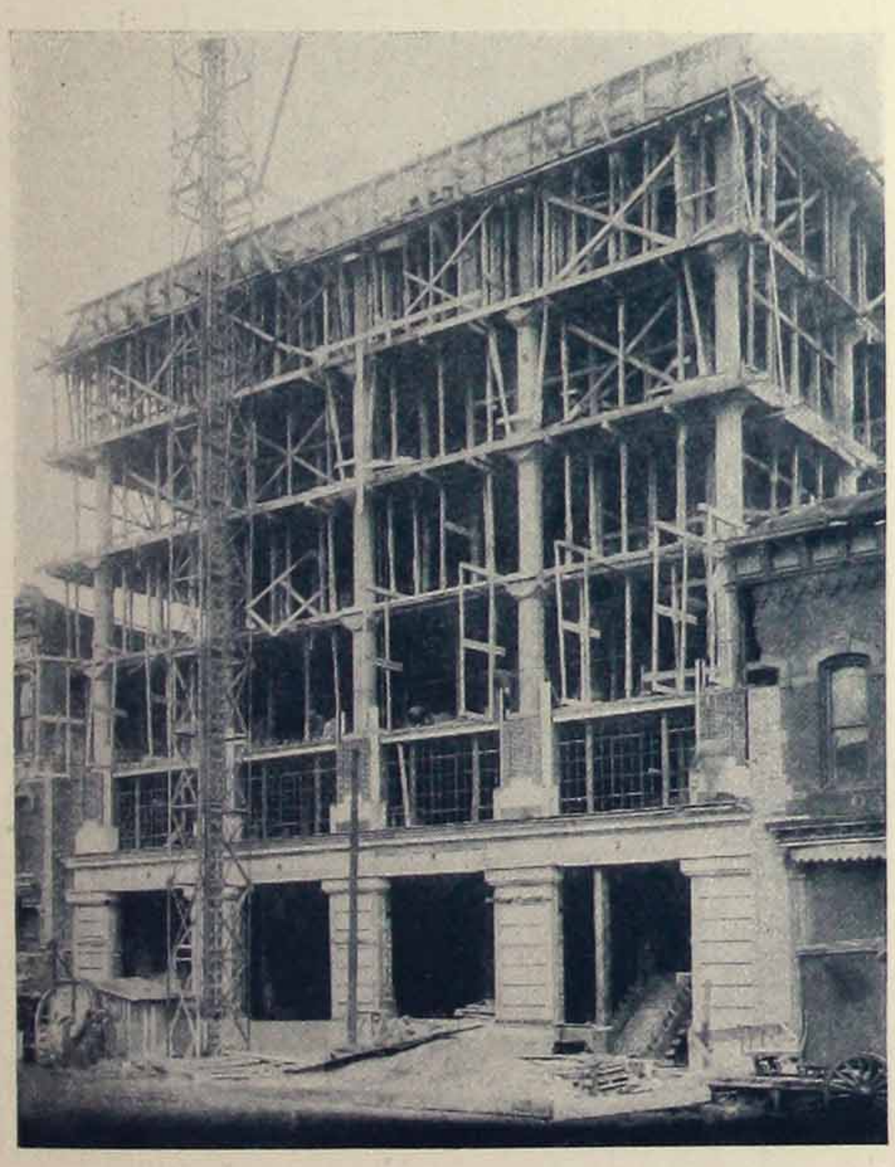


FIG. 54—BLAW CIRCULAR COLUMN FORMS ON FLAT SLAB CONSTRUCTION

Inquiries

Inquiries should be accompanied by blue prints or the complete column schedule—the number and diameter of the columns on each floor, the number of stories, the height from floor to floor, and the depth of the floor slab, beam and girder, if any, in order that we may determine the most economical outfit for a given building.

BLAW-KNOX

COLUMN MOLDS

Shank composed of panels and bands

BLAW Adjustable Circular Column Forms are considered as of two parts; the shank, or cylindrical portion, and the head, comprising that part of the column which tapers at the top.

Panels and bands make up the forms for the shank.

The panels are made up of No. 20 gauge steel sheets, which are flanged on the vertical edges and rolled to a 24″ diameter.

Panels are made in three widths; namely No. 8, No. 6 and No. 4. No. 8 panels, so called because they make 8″ of column diameter, No. 6 making 6″, and No. 4 making 4″ of column diameter. Thus using one of each would make 8″, plus 6″, plus 4″, or 18″ of column diameter, or sufficient for an 18″ column.

Panels are adjustable

Panels are furnished in three lengths only; viz., 6′, 4½′ and 3,′ which however provide for every possible height adjustment as will be explained later on.

The flanges along the vertical edges of the panels are provided with slots 9″ from each end, and at 18″ intervals. These slots are for the bands, the function of which is to clamp the panels to the proper curvature, and also to reinforce them. The flanges have additional holes between the band slots for fastening panels together on vertical seams.

Simple wedges are used for fastening

All fastenings on the shank form are made with the BLAW Steel Wedge. The panels are so designed that when a section of column is set up, it can be readily telescoped into another section. This gives the vertical adjustment for varying the length of the column, and it will be seen that any number of sections can be used with each other to obtain the desired height.

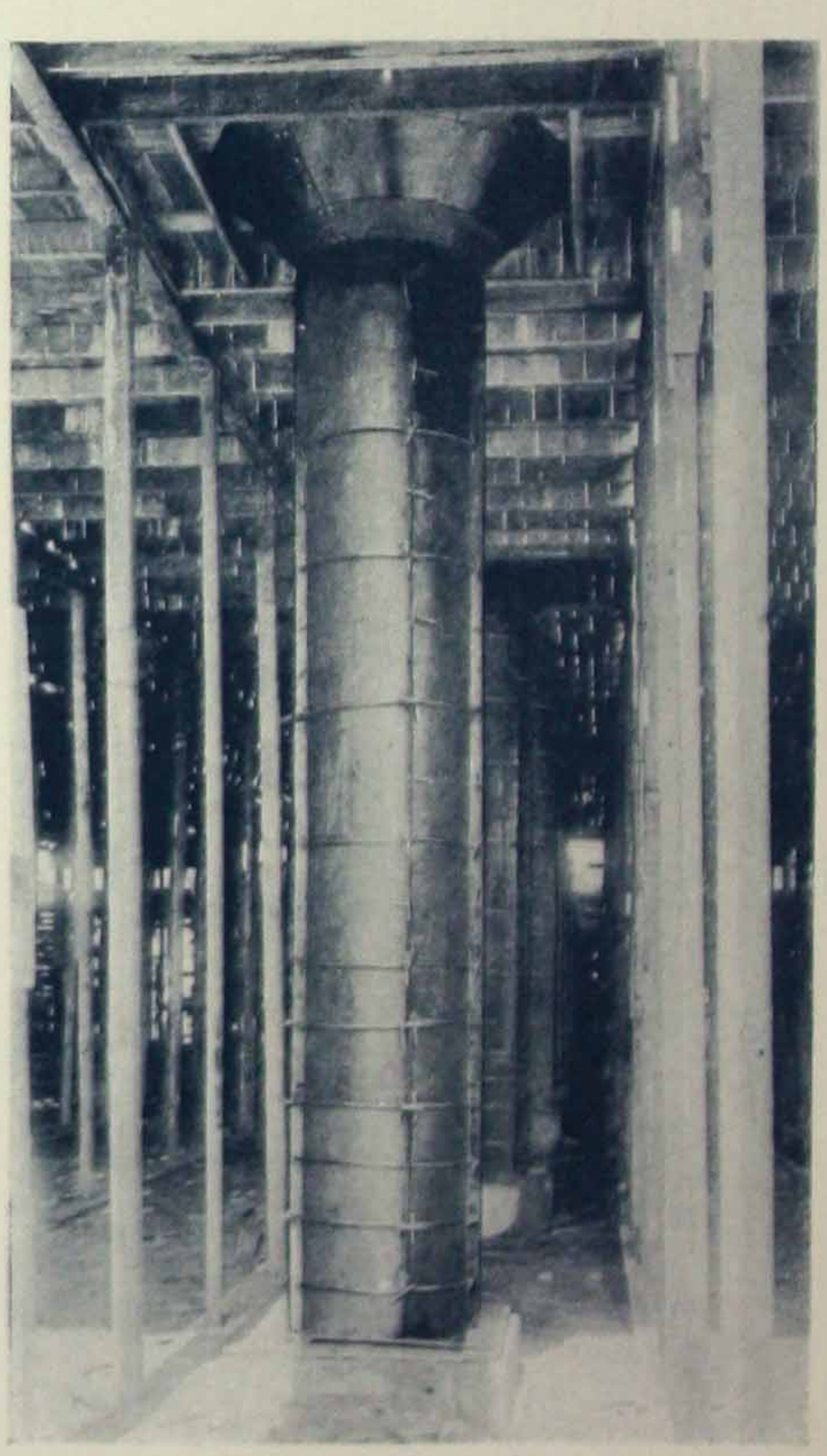


FIG. 55—STANDARD BLAW COLUMN SHANK WITH PLAIN CONICAL HEAD

COLUMN HEADS

COLUMN HEADS

There are three distinct styles of BLAW Column Heads—Molded Bell, Plain Bell and Plain Conical.

Three types of heads

All head forms are made in three parts; the top cone, the filler cone, and the bell bottom or plain bottom cone.

The top cones of all heads are made in six sizes (from 42″ to 72″, at 6″ intervals) and consist of several plates and top ring, riveted together in half circles, which, when bolted to each other make the completed top cone.

Furnished in six sizes

Filler cones act as reducers from the top cone to the bottom cone, and are common to the three types of heads. They are made up of flat flexible sheets in two pieces, which when bolted together and to the bottom of the top cone, readily conform to the outline of the head. The bell bottoms used on both Plain and Molded Bell Heads are made up of eight pressed plates or petals. These lap on each other at the vertical seams, and, when bolted together, form the complete bottom part of the head.

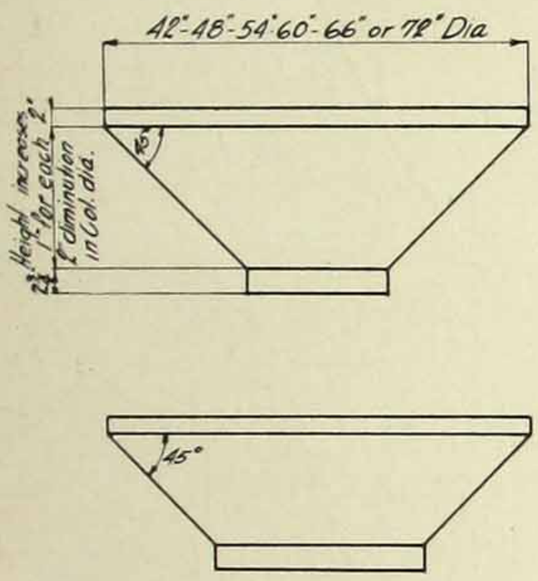


FIG. 56—PLAIN CONICAL HEAD

The bottom cones for Plain Conical Heads are made with an angular joint between the shank and the flared portion of the head.

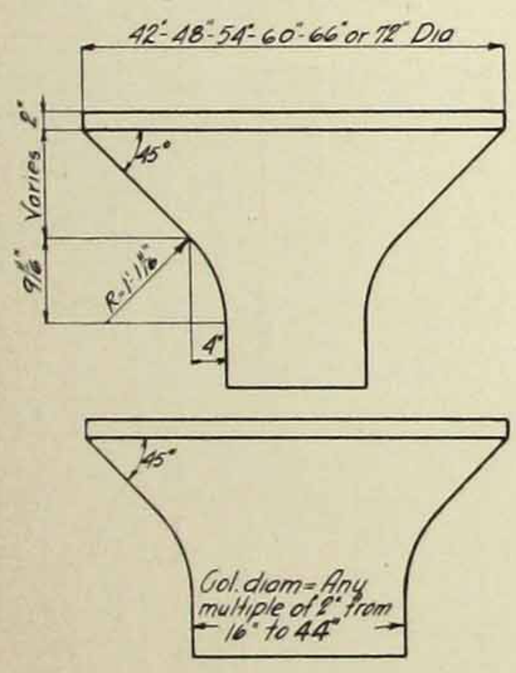


FIG. 57—PLAIN BELL HEAD

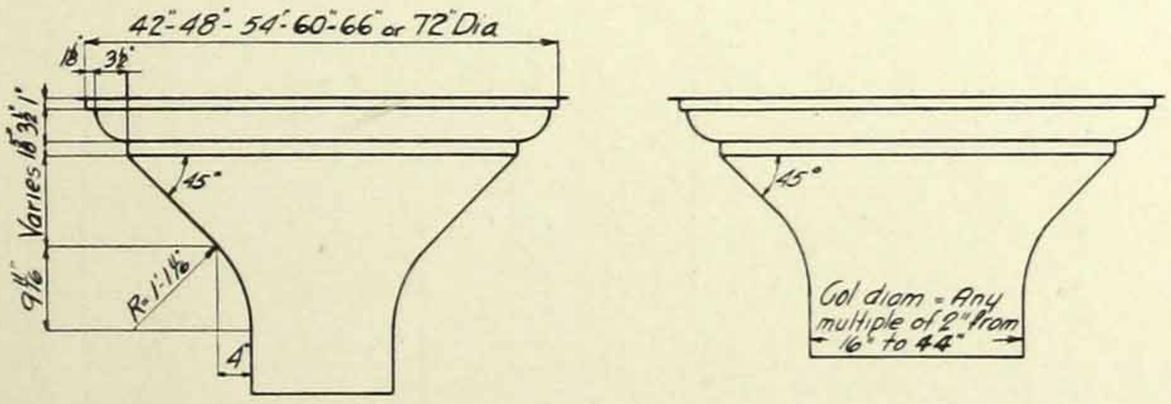


FIG. 58—MOLDED BELL HEAD

COLUMN FORMS

Advantages of BLAW Column Forms

It will be noted that BLAW Column Forms are manufactured only to take care of columns of even inch diameters.

They are absolutely rigid and accurate. When assembled the forms are stiff, and the section is perfectly uniform throughout.

The forms cannot burst or become unclamped, and are absolutely water tight.

Because of their lightness, BLAW Column Forms are easily handled and cheaply transported. All parts are nestable and therefore take up very little room.

No waste of material is connected with their use, and they are sufficiently durable to be used repeatedly.

Circular Column is preferable

Our experience has been that the prevailing opinion of architects, engineers and contractors is that the circular column is not only better engineering practice but also more economical both as to erection and the amount of concrete necessary for a given strength.

The advantages of the circular section for reinforced concrete columns are most pronounced where spiral or hooped reinforcing is used, as this type of construction permits of higher working stresses in the concrete, with a consequent saving in cross section and floor space.

A column of circular section also has the smallest exposed surface for a given cross section, and consequently a smaller quantity of concrete is required outside of the reinforcing metal.

Circular columns greatly improve the appearance of a building, give better lighting effects, and are more fireproof as there are no sharp corners to be spalled off in case of excessive heat.

BLAW Steel Forms assure a smoother finished surface than can be obtained when ordinary forms are used.

B L A W F O R M S

THERE ARE BLAW STEEL FORMS FOR EVERY TYPE OF CONCRETE CONSTRUCTION—FROM SEWERS TO SUBWAYS, FROM SIDEWALKS TO SKYSCRAPERS.

BLAWFORMS for cisterns, columns, culverts, docks, manholes, pipe, reservoirs, shafts, tanks, etc.

Arch ribs for bridges.

Traveling forms for heavy walls, locks, dams, piers, etc.

Steel side rails for road, sidewalk, curb, and curb and gutter construction.

Forms for Flat Slab, Relieved Slab, Rib Slab and Beam and Joist Floor and Roof construction.

Light wall forms for foundations, retaining walls, houses, warehouses, coal and grain bins, etc.

Standard and special round, half round, box, egg shaped and other types of steel forms for sewers, conduits, tunnels, shafts, subways, aqueducts and similar projects. Furnished in any size, either collapsible or collapsible and traveling.

No matter what your concreting problems may be, the wide experience and expert advice of the BLAWFORMS engineers is at your service—get the habit of calling them into consultation before submitting your bids.

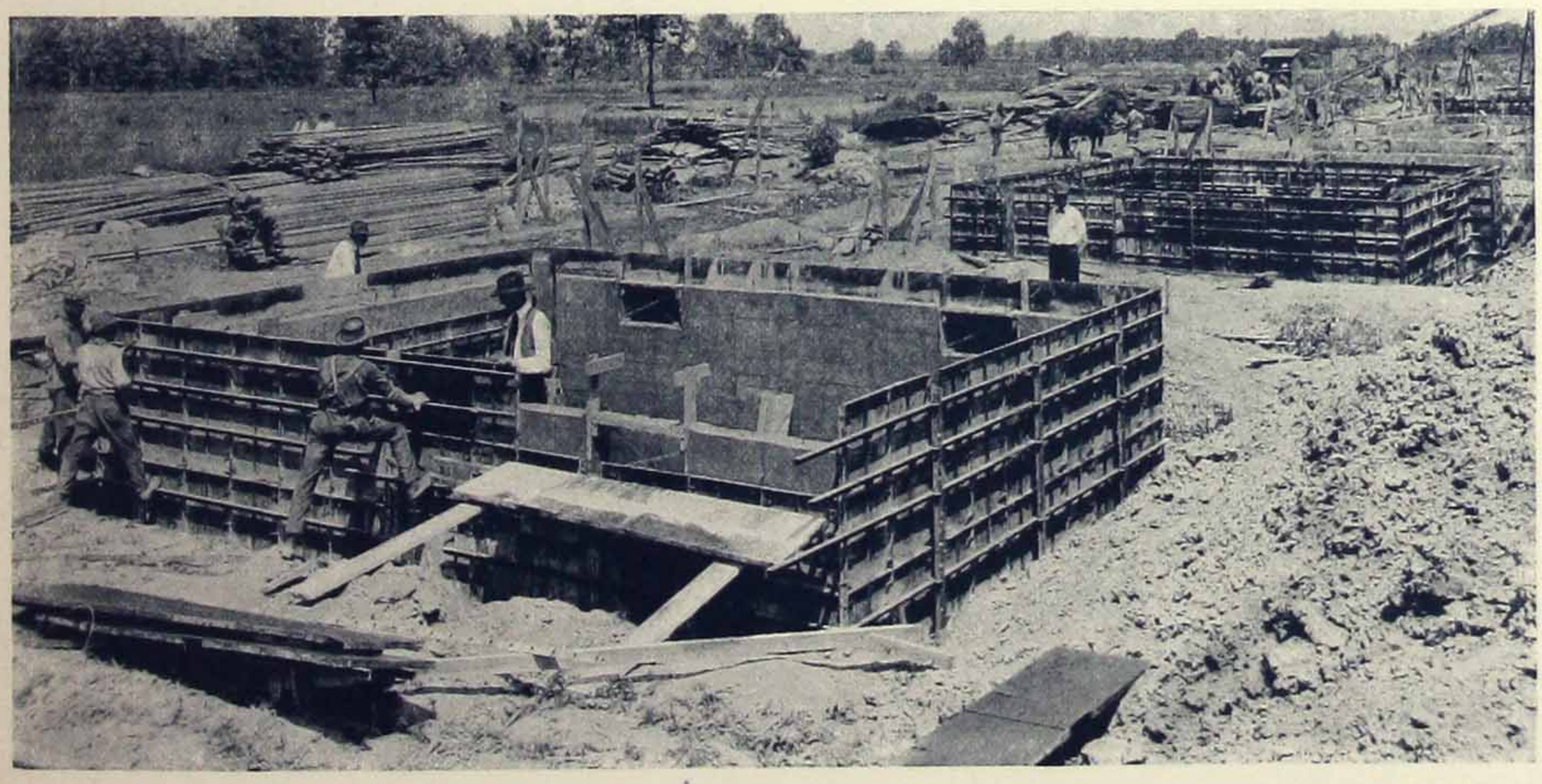


FIG. 59—BLAW LIGHT WALL FORMS USED ON CONCRETE FOUNDATIONS

BLAW-FORMS

Let BLAW form your concrete

Consulting Service

BLAW-KNOX

B L A W B U C K E T S

BLAW-KNOX COMPANY, MANUFACTURES CLAMSHELL BUCKETS FOR EVERY KIND OF SERVICE IN WHICH CLAMSHELLS CAN BE USED WITH ECONOMY.

Clamshell buckets for all purposes Single line

The SINGLE-LINE AUTOMATICS (made in two types) are the best available for hooking upon cranes or derricks ordinarily used for other purposes, without changing the lines; or for use on cable-ways, derricks, cranes, and other hoists where only one hoisting line is provided.

Speedster

The SPEEDSTER is a very rapid and efficient bucket of the lever arm type, especially desirable for continuous service unloading or rehandling such materials as coal, sand and gravel.

Bulldog

The BULLDOG is also of the lever arm type, but heavier and more powerful than the SPEEDSTER, capable of handling broken limestone, iron ore, broken slag, or clay with boulders. It is suitable for stiff excavating or dredging.

Power-wheel

The POWER-WHEEL is a light weight bucket made in small sizes. It is of the "bull wheel" type. By a unique arrangement, an extra large wheel is used, obtaining great closing power.

Automatic Cableway Carriages

BLAW CABLEWAY CARRIAGES are adapted for operating single line, two line or four line clamshell buckets on cableways not originally equipped for handling clamshell buckets. With a BLAW Automatic Carriage, a single drum non-reversing engine can operate a cableway equipped with a BLAW SINGLE LINE Bucket, the single engine drum serving to operate the bucket as well as to convey it along the cable.

On receipt of information regarding your work we will gladly send full descriptive matter on the BLAW Bucket which meets your particular requirements.

BLAW-KNOX

OTHER BLAW-KNOX PRODUCTS

PRODUCTS

Fabricated Steel

Fabricated steel, one of the principal products of Blaw-Knox Company, includes mill buildings, manufacturing plants, bridges, crane runways, trusses and other construction of a highly fabricated nature. A corps of highly trained engineers is maintained for consulting and designing services.

Plate Work

Riveted, pressed and welded steel plate products of every description, including: accumulators; agitators; water boshes; annealing boxes; containers; digesters; filters; flumes; gear guards; kettles; ladles; pans; penstocks; air receivers; stacks; standpipes; miscellaneous tanks; miscellaneous blast furnace work; etc.

Transmission Towers

Four legged straight line or suspension towers, anchor and dead end towers, latticed and channel A-frames, river crossing towers, outdoor substations, switching stations, signal towers, steel poles, derrick towers. We specialize in the design and fabrication of high tension transmission lines.

Furnace Appliances

Standard and special KNOX patented Water-Cooled doors, door frames, front and back wall coolers, ports, reversing valves, etc., for Open Hearth, Glass, and Copper Regenerative Furnaces; water cooled standings, shields and boshes for Sheet and Tin Mills.

ENGINEERING SERVICE

Consulting and designing service

The utmost economy in the use of modern equipment of any kind can only be obtained when that equipment is designed to fit the requirements of each individual job.

For that reason we maintain a separate engineering organization in every department of our endeavor. We have gathered together, during the past thirteen years, men of unusual engineering attainments and of wide experience. These men have served others and are ready and willing to serve you to accomplish your particular job in the best and most economical manner.

We heartily extend this service to you.

BLAW-KNOX

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